IMPROVING IMPLEMENTATION OF SMOKE-FREE LAWS IN LOW- AND MIDDLE-INCOME COUNTRIES: FINDINGS FROM QUALITATIVE RESEARCH IN BOGOR, INDONESIA

by
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ABSTRACT

As the weight of the global tobacco epidemic shifts toward low- and middle-income countries (LMIC), local and international public health advocates are working to ensure tobacco control measures are there to meet it. One element of a comprehensive tobacco control law is the implementation of policies to protect the public from toxic secondhand smoke exposure. With the signing of the World Health Organization's Framework Convention on Tobacco Control (FCTC), 178 countries have committed to enacting smoke-free laws to protect their citizens. One country that has not signed the FCTC is Indonesia, home to 252 million people, of whom 67% of men and 2.7% of women are smokers. These 60 million smokers expose an additional 100 million nonsmoking children and adults to secondhand smoke in public and private places.

While national control laws are minimal in Indonesia, in 2009, Bogor became the first Indonesian city to pass a comprehensive smoke-free law, banning smoking in all indoor public spaces. Early reports indicated that compliance with the law was mixed, with success in areas such as schools and hospitals, but low compliance in restaurants and malls. If compliance can be raised in Bogor, the city can set an example for further smoke-free laws across the country.

This dissertation sought to address three specific aims: 1) to conduct a systematic literature review and create a research agenda regarding implementation of smoke-free laws in LMIC; 2) to understand the current social norms around public smoking in Bogor, Indonesia and make recommendations for how to increase compliance with the smoke-free law, using the theory of normative social behavior as a framework; and 3) to

describe the impact of Muslim leaders' pronouncements about smoking on compliance with the smoke-free law. The ultimate purpose of this research was to learn how to improve implementation of the smoke-free law in Bogor and gain insight into improving implementation of smoke-free laws in other parts of Indonesia and other LMIC.

The dissertation begins with a literature review on implementation of smoke-free laws in LMIC. For this review, 3,894 scientific articles and 174 other publications were considered, of which 131 met the inclusion criteria. Many of the health and economic aspects of smoke-free laws in high-income countries also carry over to LMIC, that the tobacco industry aggressively resists smoke-free laws, and that a number of obstacles to successful implementation are faced in LMIC. From this review, I suggest 4 areas for research that can impact public health practice in LMIC: 1) learning how to make the most effective use of limited resources; 2) determining how to increase political will among political leaders and smoke-free law enforcement officers; 3) finding new methods to increase compliance, and 4) assembling a descriptive and instructive theoretical model for the implementation of smoke-free laws.

To address aims 2 and 3, in 2012 I traveled to Bogor, Indonesia to conduct qualitative field research to learn about the implementation of the smoke-free law in Bogor and how compliance with the law might be improved. In this fieldwork from April through August 2012, working with a team of focus group facilitators and interpreters, I completed 52 interviews with city leaders and venue managers, and oversaw the conduct of 11 focus groups with 89 residents of Bogor. In these qualitative data gathering components, we asked questions about the social norms about public smoking in Bogor, perspectives on the implementation of the law, and ideas for strengthening compliance.

The focus groups were fruitful for understanding the experiences of everyday Indonesians while the interviews provided additional perspective about the process of creating and enacting the law. In the focus groups and interviews, it was explained that smoking in public in Bogor is quite common among men and discouraged among women. It is also normal that some local laws, such as the smoke-free law, are neither strictly enforced nor routinely complied with. Using the theory of normative social behavior as a framework to understand Bogor's norms around public smoking and setting my findings in the context of the theory of normative social behavior, I identify points of leverage to increase compliance. These include correcting any misperceptions about the frequency of violations, making salient the moral and legal requirement to follow the law, increasing the expectation of social and legal punishment for violations, and endorsing a message that an Indonesian gentleman does not smoke indoors. These findings provide possible avenues for revisions to enforcement approaches and more constructive communication efforts.

Addressing the third aim, I investigated the role of religious messages on the public's compliance with the smoke-free law. Nonsmokers said that the anti-smoking pronouncements of national Muslim organizations reinforced their nonsmoking behavior, but smokers said these pronouncements had little effect on their smoking behavior. Instead, they said it is up to individuals to decide what to do, and that it made little sense for Muslim leaders to speak about smoking if the leaders themselves still smoke in public. However some participants said that it is helpful for religious leaders to support the smoke-free law. The overall finding is that while national pronouncements have little effect, there may be a value in having conversations with local Muslim leaders to enlist

their help in setting a positive example and encouraging their followers to comply with the smoke-free law.

This dissertation presents an introduction of background information about smoke-free laws and Indonesia, proceeds with three manuscripts describing the findings in detail, and concludes with a discussion chapter covering points of synthesis and ideas for future research. Throughout these chapters, I add depth and context to the implementation of smoke-free laws in low- and middle-income countries, using Bogor, Indonesia as a lead example.

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In memory of Elaine and Nisya

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INTRODUCTION

Asia has become a focus of the global anti-smoking movement. Pressures to curtail our activities will continue to mount as the regional anti-smoking forces strengthen ties with the international network and as governments which previously gave little attention to the tobacco industry look at restrictive measures being implemented in the West. The region has witnessed a rapid change from the issues of trade and tax to the more 'traditional' tobacco issues related to the controversy over smoking and health. . . Our objective is to limit the introduction and spread of smoking restrictions and maintain the widespread social acceptability of smoking in Asia.

- Philip Morris Asia Corporate Affairs Plan, 1989

[I]n our environment, people are all smokers so we don't need to be shy, if we want to smoke, just smoke.

- Resident of Bogor City, Indonesia, 2012

THE TOBACCO EPIDEMIC AND SMOKE-FREE LAWS

Former World Health Organization (WHO) Director-General Dr. Gro Harlem Brundtland has described tobacco use as "one of the greatest emerging health disasters in human history."[1] Smoking caused 100 million deaths in the 20th century, and if unchecked, may cause 1 billion more in the 21st century.[2] The burden of the tobacco epidemic is shifting disproportionately from high-income countries to low- and middle-income countries (LMIC): from 2002 to 2030, tobacco-related deaths are projected to fall by 9% in high-income countries, but increase by 100% (i.e., double) in LMIC.[3] Already, nearly 80% of all deaths from tobacco occur in LMIC.[4] In 1999, WHO convened international negotiations around tobacco control, resulting in the landmark 2003 Framework Convention on Tobacco Control (FCTC), an international treaty of

requirements, recommendations, and guidelines for strong tobacco control measures worldwide.[5] As of July 2014, 178 countries have become parties to the FCTC, agreeing to implement its measures.[6] Indonesia, the focus of this dissertation, is one of the few countries that have not signed the FCTC.

Secondhand smoke and smoke-free policies

One of the core components of the FCTC is a requirement that countries enact smoke-free policies, "providing for protection from exposure to tobacco smoke in indoor workplaces, public transport, indoor public places and, as appropriate, other public places."[5] Secondhand smoke (SHS) is the combination of the smoke exhaled by a smoker and side-stream smoke, the smoke emitted from a lit cigarette. This smoke contains over 7,000 compounds,[7] of which at least 69 are known carcinogens.[8] WHO has determined that there is no safe level of SHS exposure.[9] Among adults, SHS causes immediate cardiovascular effects, coronary heart disease, lung cancer, and potentially an array of other cancers.[10] Among children, exposure to SHS can cause sudden infant death syndrome (SIDS), acute respiratory infections, ear problems, delayed lung growth, and more severe asthma.[10] All told, SHS is responsible for 603,000 deaths worldwide among non-smokers each year.[11] The solution to the problem of SHS is straightforward: comprehensive laws banning smoking in public spaces greatly reduce exposure to SHS.[9] Only 100% smoke-free laws fully protect citizens from SHS in public; designated smoking areas, ventilation methods, and laws with exemptions still lead to exposure.[12,13] In addition to reducing nonsmokers' exposure to SHS,[14] smoke-free laws also have the potential to decrease cigarette consumption and encourage cessation,[14,15] reduce youth smoking,[16] and encourage families to make their homes smoke-free.[17] Contrary to the

tobacco industry's claims, smoke-free laws have a neutral or positive effect on hospitality industry revenue.[18,19] Generally, support for and compliance with smoke-free laws increases in the months and years after their implementation.[14] However, there are some LMIC where compliance has been slow to take hold.[20,21]

The history of smoke-free laws

Some of the first calls for smoke-free policies began within a few decades of the rapid growth in cigarette use in the early 20th century, long before the health effects of smoking and SHS were known.[22] Mid-century, after reports in the 1960's revealed the negative health effects of smoking,[23,24] the potential harms of SHS were discussed in the 1972 US Surgeon General's Report.[25] In this era, some early smoke-free laws were passed, including a 1970 law in Singapore banning smoking in theatres, cinemas, public elevators, and specific buildings.[26] Then in 1981, two seminal studies were released in Japan[27] and Greece[28] showing that nonsmoking women married to men who smoked had increased cancer risk. In the 1980's a number of US cities and states placed restrictions on smoking in public places. The first city in the world to pass a comprehensive public smoke-free law—with no exemptions or exclusions—was San Luis Obispo, California in 1990[29] and the first country to do so was Ireland in 2004.[30] Other countries, regions, cities, and towns followed suit, so that by 2008, 5% of the world's population was covered by comprehensive smoke-free laws, growing to 11% by 2010,[31] and 16% (1.1 billion people) by 2012.[32] Fueled by the FCTC, recent years have shown rapid growth in smoke-free laws across countries. As of January 2014, 92 countries had passed smoke-free laws.[33] These laws are making a significant impact in improving health: between

2007 and 2010 alone, the new smoke-free laws implemented in 20 countries have averted an estimated 2.5 million deaths.[34]

The introduction of smoke-free laws in LMIC

Smoke-free laws are increasingly common in LMIC. In 2006, Uruguay became the first LMIC to pass a national comprehensive smoke-free law, followed by Turkey (2008-2009), Panama (2008), Guatemala (2009), Syria (2010), Peru (2010), Paraguay (2010), and Brazil (2011).[35] As of 2012, 22% (11/51) of high-income countries, 27% (29/107) of middle-income countries, and 8% (3/37) of low-income countries are strongly protected by smoke-free laws (having either comprehensive national laws or at least 90% of the population covered by comprehensive subnational laws).[32] Some of the world's largest LMIC, such as China, India, and Indonesia have poorly-implemented and incomplete smoke-free laws nationally, but have seen some success in particular cities.

Implementation and compliance

After a smoke-free law is passed, it must be implemented, a process defined as "the carrying out of a basic policy decision."[36] Implementation of smoke-free laws involves enforcement of the law as well as education and communication campaigns to inform the public about the law. The conceptual framework in Figure 1 shows the various processes and effects involved in the use of smoke-free laws to improve public health. It explains how enforcement and education affect social norms and compliance with the law. Based on research in a wide variety of countries, implementation guides have listed lessons learned in efforts to achieve smoke-free compliance.[37-39] The resulting best practices include writing clear legislation, having an enforcement plan and good interagency coordination, countering industry opposition, and involving civil society in

planning and public outreach measures.[37-39] When a smoke-free law achieves compliance and becomes a new social norm, it can be self-enforcing, in that the public and venue managers do most of the enforcement rather than government officials.[40]

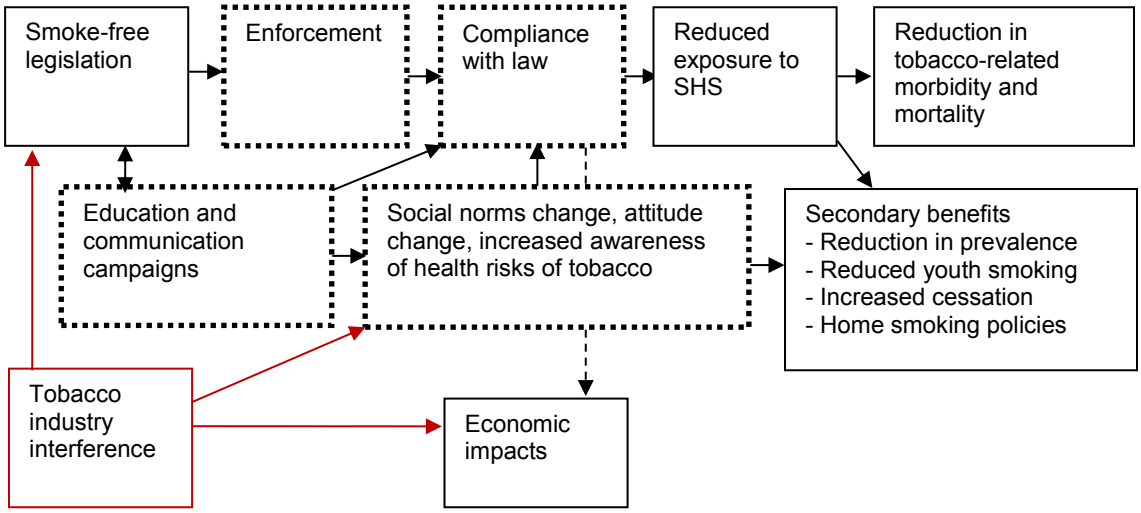

Figure 1. General smoke-free law conceptual framework. Study focus areas are indicated with dotted boxes. Description: Smoke-free laws are often initiated only after significant organizing and educational work by smoke-free law advocates. These education and communication campaigns compete with tobacco industry claims that smoke-free laws are an infringement on rights, are unworkable, or will harm businesses. Once passed, smoke-free legislation requires enforcement to reach compliance. Compliance is also directly supported by campaigns that announce the policy and through the mediation of changes in awareness and social norms that can be initiated by the campaigns. The economic effects that result from compliance are neutral or positive for most businesses.[18] When compliance is reached, exposure to secondhand smoke is reduced, which reduces tobacco-related morbidity and mortality and may reduce smoking prevalence and youth uptake, encourage cessation, and inspire individuals to make their homes smoke-free. Adapted from IARC, 2009.[30]

The need for more research on implementation of smoke-free laws in LMIC

Achieving compliance with smoke-free laws has proven especially problematic in LMIC[41] due to a number of social, cultural, logistical, and political obstacles (see detailed discussion in Chapter 3). There is a pressing need to identify best practices for improving implementation of smoke-free laws in LMIC amid the unique environments and constraints in each country. This dissertation aims to address these needs by combining a

systematic literature review with qualitative fieldwork conducted in Bogor City, Indonesia. This introductory chapter sets the stage for the dissertation project by discussing the theoretical background that informed the research design and methods, providing contextual information about Indonesia, and reviewing related qualitative research. I then present the aims of the project and an outline of the chapters that follow.

THEORY ON POLICY IMPLEMENTATION AND SOCIAL NORMS CHANGE

Policy implementation theory

Implementation and compliance are critical aspects of public policy. Over the last 40 years, the approach of implementation research has shifted from a top-down perspective looking at how successfully decision makers control policy implementation, to a bottom-up perspective focusing on how local bureaucrats implement policies on the ground, to hybrid theories which consider many of the stakeholders involved.[42] One of the more well-known of these hybrid theories is the advocacy coalition framework (ACF) developed by Sabatier and Jenkins-Smith (Figure 2).[43,44] The framework explores the interactions of *advocacy coalitions* of actors from various institutions who share a set of policy beliefs within a *policy subsystem*.[44] These coalitions encourage the development and implementation of a particular policy. There are five main principles of the ACF:[45,46]

- Scientific and technical information play a central role in the policy process.
- A time perspective of 10 years or more is (generally) required to understand policy change.
- The most useful and primary unit of analysis is the policy subsystem, which is defined by policy topic, geographic scope, and influencing actors.

- The set of policy subsystem actors includes all levels of government, scientists, and members of the media.
- Policies and programs can be viewed as translations of beliefs.

The ACF, while originally based on the assumptions of American pluralism,[46] has been modified for international use by the additional consideration of *coalition opportunity structures*, which represent the varied political resources and constraints on the behavior of advocacy coalitions.[47,48]

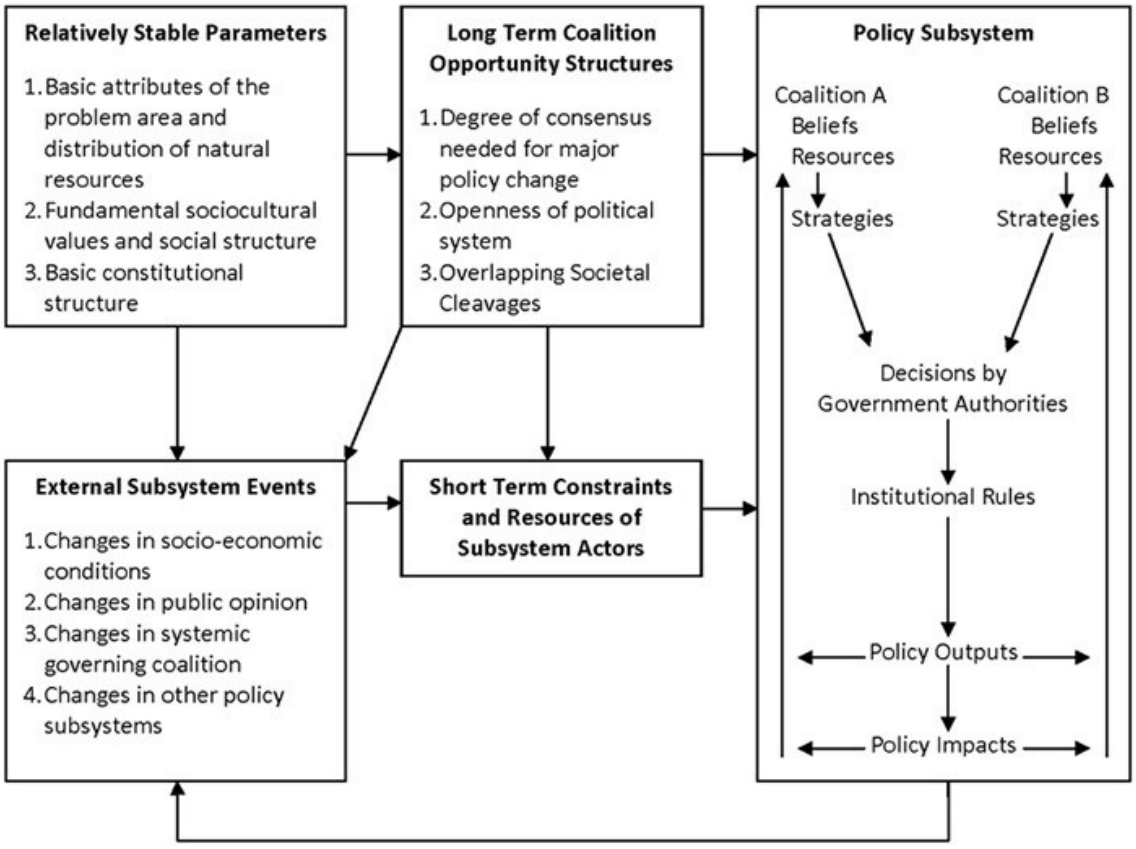

Figure 2. Model of the advocacy coalition framework. From WPPR, 2008.[48]

In applying the ACF to the implementation of a generic smoke-free law, the policy subsystem would be "the regulation of indoor smoking" and the positions of actors

could be divided into two advocacy coalitions. One could be called the "tobacco control coalition" and would likely be formed around the *core belief* that the government's priority should be protecting health and the *policy belief* that smoke-free policies are needed. This coalition would include the tobacco control and public health communities and supportive researchers and members of the media. The other coalition might be an "economic-focused coalition" that has the *core belief* that the government's priority should be keeping jobs and revenue income and the *policy belief* that the status quo, or some partial remedy such as designated indoor smoking areas, is the best policy solution. This coalition would likely include tobacco companies, tobacco-related industries, and their allies in the media and government. In addressing policy implementation, ACF looks at the strategies of the coalition actors to manipulate the legal attributes of government programs.[49] It also considers the effects of socioeconomic changes, changes in public opinion, and other external events; along with the actors' learning about the problem and the impact of various policy instruments.

The ACF functions more as a background framework than an explicit theoretical basis for the chapters that follow. The ACF is helpful in elucidating the opposing coalitions of players involved in debates over smoke-free laws, the internal and external influences on their decisions, and the ways political opportunities arose and were used to advance smoke-free legislation and put it into practice.

Normative theory

Another useful way to conceptualize the implementation of smoke-free laws is as the transformation of a social norm that smoking is acceptable in public places to a norm that it is not. From this perspective, it is instructive to consider social norms theories from social psychology. Brennan comprehensively defines norms as follows: "Norms materialize as regularities in social life, because there is general approval for the pattern of behavior involved, disapproval for the failure to elicit that behavior, or the expectation of such general approval or disapproval" (p.267).[50] With smoke-free laws, the goal of implementation officials is to reach the point where the expectation of social disapproval is sufficient to dissuade individuals from smoking in the restricted venues. In various incarnations, social norms are components in many traditional behavior change theories such as the theory of reasoned action,[51] the theory of planned behavior,[52] and social cognitive theory.[53] More recent study of social norms distinguishes between two types of norms: injunctive norms describe perceptions about what should be done in a particular situation, and descriptive norms describe perceptions of what other people actually do in the situation.[54] When these norms are contradictory, the focus theory of normative conduct suggests that individuals respond to whichever norm is more salient.[54] For example, a smoker thinking about lighting up a cigarette in a restaurant may be swayed by either visible smoke-free signage (cuing the injunctive norm) or the sight of a person at another table who is smoking (cuing the descriptive norm), depending on which cue they find more salient, based perhaps on the nature of the messages in the signage or proximity of the other smoker. A further elaboration on the relationship between the two types of norms and behavior is outlined in the theory of normative social behavior

(Figure 3). The theory of normative social behavior posits that descriptive norms are moderated by injunctive norms, outcome expectations, and group identity.[55] Thus to encourage smoke-free behavior, public health officials could A) work to increase the perception that the descriptive norm is that others follow the law, B) emphasize the injunctive norm that one should follow the law, C) remind smokers of the negative outcome expectations of flouting the law, and/or D) convey the message that desirable social groups prefer members who follow the law. A more detailed application of the theory of normative social behavior to a smoke-free law is explored in Chapter 4.

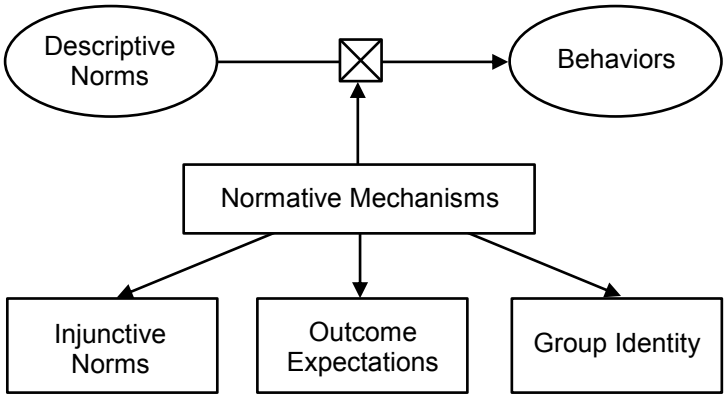

Figure 3. Model of the theory of normative social behavior. From Rimal & Real, 2005.[55]

This project also incorporates thinking from Merton's reference group theory, which describes which social groups a person finds influential.[56-58] The theory states that the degree to which a group serves as an influential reference point for an individual is a function of five factors: similarity in status to the group, sharing the values and beliefs of the group, having clarity about the group's values and beliefs, having sustained interaction with the group, and whether an individual defines other group members as

significant.[56-58] This theory is used in Chapter 5, in discussion about the influence of Muslim organizations on smoking behavior in Bogor. Additionally, the development and use of theory generally is discussed in the research agenda in Chapter 3, and then revisited in the discussion in Chapter 6.

THE CONTEXT OF BOGOR, INDONESIA

People and history of Indonesia

Indonesia is a large and diverse country, with 252 million residents[59] speaking 580 languages and dialects across 6,000 inhabited islands.[60] The majority (57%) of residents live on the island of Java, the world's most populated island.[59] In terms of urbanization, 44% of the population lives in cities.[61] Islam is the largest religion representing 87% of the population, followed by Christianity at 10%, and the remaining 3% are Hindu, Buddhist, Confucian, or traditional religions.[62] The government is a democratic republic based on the 1945 Constitution created when Indonesia gained independence from Dutch colonization. The succeeding decades of rule by President Sukarno and President (and former General) Suharto were marked by nationalism, authoritarianism, and high levels of corruption on all levels.[63] Then, in 1998, the Asian economic crisis and resulting economic instability led to the exit of Suharto and the beginning of the *Reformasi* (reformation) era. Among other political changes, this era included increasing freedoms of speech and democracy, greater regional autonomy, and more open economic policies. Many of Indonesia's historical tensions carryover to present day, including the political power of the military, the movement for an Islamic state, and the struggle for greater regional autonomy. After the fall of Suharto, Indonesia

was led in quick succession by Presidents Habibie (1998-1999), Wahid (1999-2001), and Megawati (2001-2004). The first directly-elected president was Yudhoyono (2004-present), a former Lieutenant General. Yudhoyono has worked to improve the country's financial stability and to increase foreign investment while also responding to a number of terrorist bombings and major earthquakes and tsunamis.

In terms of health, the life expectancy in Indonesia is 68.8 for men and 73.9 for women.[61] The top causes of death are heart disease (14%), tuberculosis (8%), cerebrovascular disease (8%), lower respiratory infections (7%), perinatal conditions (5%), chronic obstructive pulmonary disease (COPD) (5%), road traffic crashes (3%), and diabetes (3%) .[64] Additionally, influenza A virus subtype H5N1, "bird flu," is endemic in Indonesia.[65]

Tobacco and kreteks

Tobacco was brought to Indonesia in the late 1800's by the Dutch, who smoked cigars and cigarettes.[66] The local spice of clove was added, making *kreteks*, or clove cigarettes. The production of kreteks has changed over the years, from being rolled at home to being hand rolled in a commercial industry, to high speed machine production which took hold in the 1970's and dramatically increased production.[67] The combination of kretek mechanization and preferred regulatory status as a domestic product led to the dominance of kreteks over "white cigarettes," and kreteks now account for 88%[68] of the 302 billion[69] cigarettes consumed annually in Indonesia. Modern kreteks are made with approximately 1/3 clove, 2/3 tobacco, and a mix of other flavorings and additives.[70] Kreteks in Indonesia are generally far higher in tar and nicotine than white cigarettes. The most popular kretek brand is Gudang Garam with 30mg tar and 1.8 mg nicotine. The

second most popular brand, representing the emerging popularity of lighter kreteks perceived to be of lesser risk, is called A Mild (14mg tar, 1mg nicotine), which is comparable to full-flavor Marlboro cigarettes (13mg tar, 1mg nicotine).[71] Kreteks are typically sold 12 or 16 to a pack, and a mid-priced pack sells for about 12,000 Indonesian Rupiah (Rp), equivalent to $1.03 US.[68] Kreteks are also sold individually at kiosks and by street vendors, for as little as $0.02 each.[66]

Tobacco use

As of 2012, 67.0% of men and 2.7% of Indonesian women smoke,[72] up from 53.4% of men and 1.7% of women in 1995. In all, there are 59.9 million smokers in the country, making Indonesia third only to India and China in total number of smokers.[72] Taken together, smoking and exposure to SHS cause as many as 428,000 deaths annually in Indonesia, accounting for 23% of all deaths.[73] Smoking often begins quite early, with 31% of smokers having had their first cigarette by the age of 10.[74] Among youth 13-15, 41.0% of boys and 3.5% of girls are current smokers.[75] Demographics of current smokers (daily or occasional smokers) are shown in Table 1. Among men, regular smoking generally begins by the teens to early 20's, and then increases to level off at a prevalence of 60-70% in older age groups.[76] Among women, smoking slowly and continually increases with age.[76] Smoking is also associated with rural living, low education, and low income.[76]

Tobacco makes up a large portion (9-10%) of household expenses in all economic strata.[76] This hinders the health and well-being of families, as fewer funds are left for food, education, and other necessities.[77]

Table 1. Prevalence of current smoking of Indonesian adults ages 15 or older by demographic characteristics. From WHO, 2012.[72]

	Male	Female
All	67.0	2.7
Age		
15-24	51.7	0.1
25-44	73.3	1.7
45-64	72.4	5.8
65+	61.2	6.7
Residence		
Urban	61.6	2.3
Rural	72.5	3.0
Education level		
Less than primary school	81.0	5.8
Primary school completed	74.0	2.7
Secondary school completed	62.3	0.6
High school completed	58.7	1.0
College or university	49.8	2.2
Work status		
Employed	69.8	1.5
Self-employed	75.7	4.2
Students	25.1	0.0
Homemakers	-	2.6
Unemployed	55.4	3.4

Exposure to SHS

In Indonesia, well over 100 million adult and children nonsmokers are regularly exposed to SHS.[78,79] The 2011 Global Adult Tobacco Survey found that among nonsmoking adults (ages 15 years and older), 71.7% were exposed to SHS in their homes and 45.6% of those who work indoors were exposed to SHS in their workplace.[72] Among adult nonsmokers who visited the following public venues in the previous 30 days, the exposure rates were 80.5% in restaurants, 65.8% in public transport, 57.9% in government buildings, 36.5% in schools, 16.8% in health-care facilities, and 13.9% in religious facilities.[72] In terms of mortality, there are 27,300 annual deaths from SHS

exposure in WHO Region B, which includes Indonesia, Thailand, and Sri Lanka.[11] The majority of these deaths are due to ischemic heart disease.[11]

In terms of beliefs about secondhand smoke in Indonesia, 67.8% of smokers and 76.7% of nonsmokers believe exposure to SHS causes serious illness, with knowledge lower among rural populations, older age groups, and those with lower education.[72] Polls show that 93% of Indonesians support smoke-free offices and indoor workplaces and that support for smoke-free public places is also high.[80]

Symbolic and cultural role of kretek smoking

Inherent in the rapid modernization of Indonesia's cities and the influx of individuals from the countryside into the urban environments has been a tension between the excitement and the stress that this new environment causes.[81] The Javanese ideal is to be able to control one's emotions, and thus it is common for men to seek "empty thoughts" (*pirikan kosong*) as a temporary break from their busyness.[81] Smoking is seen as an aid in this quest, as a way to achieve inner strength (*prihitan*) in a way similar to fasting or meditating, and as a way to avoid heavy thoughts (*pikiran berat*) and stress (*stres*).[67] Tobacco company marketers have astutely played into these desires, creating ads that convey balance, masculinity, loyalty, tradition, and modernity.[67] Thus the new smoke-free law could be perceived as requiring that men situationally separate themselves from a powerful symbol of the Javanese ideal male.

The Islamic perspective on tobacco

Muslim leaders are influential on politicians and individuals in Indonesia.[82] In January 2009, the *Majelis Ulama Indonesia* ("Indonesian council of religious scholars," MUI), Indonesia's top Muslim clerical body, which includes 700 representatives from

various Muslim organizations, issued a *fatwa* (religious ruling or opinion) stating it is *haram* (forbidden) for children or pregnant women to smoke or for anyone to smoke in public, and stating that otherwise smoking is *makruh* (discouraged).[83] The Indonesian finance ministry warned that this fatwa could result in a 10% decline in cigarette sales.[84] Nahdlatul Ulama ("The rise of religious scholars," NU), the largest Muslim organization with 40 million members, disagreed strongly with the fatwa, saying that it was "pointless."[83] Then in March of 2010, Muhammadiyah ("the way of Muhammad"), the second largest Indonesian Muslim organization with 30 million members, declared that all smoking was *haram*, relating it to suicide, which the Quran prohibits: "make not your own hands contribute to your own destruction" (2;195) along with wasting money and causing willful harm to others. Indonesia's Religious Affairs Minister called Muhammadiyah's fatwa "unwise," saying that it would cause unrest, and that "unless it poses a direct threat to human health, such as by causing heart disease, then smoking should not be haram."[85] NU and MUI also disagreed with Muhammadiyah's decision, and said that smoking was only makruh. Ma'ruf Amin, MUI chairman and a senior figure in NU said some MUI clerics wanted to expand the MUI's fatwa, but that, "change takes time and we will do it gradually."[86] Additional controversy arose when it was found that the organization had received grant funding from the US-based Bloomberg Initiative to Reduce Tobacco Use.[87] In response to the criticism, Muhammadiyah's central executive chairman, Sudibyo Markus, said that the decision for the fatwa was not influenced by the funds and was based on health grounds.[87] Some of NU's aversion to a smoking ban may stem from the high prevalence of smoking among their Muslim leaders. As one leader of an Islamic boarding school said, "smoking is one of life's pleasures, like praying and

fasting."[86] Additionally, NU has a history of investing in the tobacco industry, and in 2003 had worked with tobacco company Bentoel to market a new brand of kretek, *Tali Jagat* ("Rope of the Universe") which was launched with plans to market in mosques, providing free samples at Quran readings.[88]

The modern tobacco industry in Indonesia

Infusion of multi-national expertise

Three companies, Sampoerna, Gudang Garam, and Djarum, control 65.9% of the Indonesian tobacco market by volume.[89] For decades, international tobacco companies struggled to gain a substantial presence in the Indonesia.[90] Then, in 2005, Philip Morris International purchased HM Sampoerna, the third largest kretek manufacturer in Indonesia, for $5.2 billion.[91] This was followed in by British American Tobacco's $494 million acquisition of PT Bentoel in June 2009.[92] These international companies brought with them their vast expertise in product development, lobbying, and marketing. The local and international tobacco companies have strategically involved themselves in local communities, providing scholarships for students, and sponsoring sports teams and community events, practices which socially legitimize and normalize smoking.[67]

Targeting youth and women

Children or adults of any age can buy cigarettes in Indonesia. As noted above, youth smoking is common, and the market research firm Euromonitor notes that tobacco companies are clearly marketing to youth.[93] Euromonitor has also noted the tobacco industry's increased targeting of women, leveraging movements for women's equality.[93] Smoking among women has historically been considered inappropriate in Indonesia, but prevalence may be increasing among affluent and educated women in urban areas such as

Jakarta and among women working at non-governmental organizations (NGOs).[77,94] In response to the increased marketing of cigarettes to women and youth, the NGO Indonesian National Commission on Tobacco Control has been working to raise awareness among women.[95] This may help women both avoid being targets themselves, and become more involved in preventing tobacco use among their children and encouraging cessation among their husbands, as Indonesian women are traditionally seen as the guardians of their family's health.[77]

Farmers and workers in the tobacco industry

The Indonesian government has historically avoided tobacco control measures out of concern of hurting tobacco-related employment and tax revenue.[66] However, the role of tobacco in overall employment has been reduced dramatically over the years with the increase of tobacco imports and the improved output of manufacturing equipment. For instance, there were 582,000 tobacco farmers in 2007, down from 913,000 in 2001.[96] Also, since money not spent on tobacco is spent on other goods, the effect of tobacco control measures on the economy and workforce is tempered.[97] As has been noted by the Indonesian Ministry of Health, the main threat to tobacco-related employment is automation, not tobacco control.[98]

Tobacco control in Indonesia

The Indonesian central government does limited tobacco control work; most of the efforts in the country are instead driven by NGOs and local jurisdictions' health departments. Among the NGOs, there is a mix of local, regional, national, and international organizations, some of which are more closely connected than others. Much of the international effort is supported through the Bloomberg Initiative to Reduce

Tobacco Use, via five organizations: the Campaign for Tobacco-Free Kids, the International Union Against Tuberculosis and Lung Disease (the Union), the Johns Hopkins Bloomberg School of Public Health Institute for Global Tobacco Control (IGTC), WHO, and the World Lung Foundation. There are also dozens of national organizations involved in tobacco control. The NGO Indonesia Tobacco Control Network coordinates the efforts among 30 organizations.

Development of smoke-free laws in Indonesia

A 2000 amendment to Indonesia's Constitution added Article 28, which states a right "to enjoy a good and healthy environment" (28.H.1) and the duty "to accept the limitations determined by law for the sole purposes of guaranteeing the recognition and respect of the rights and liberties of other people..." (28.J.2).[99] While this would seem to augur well for tobacco control, with the strong power of the tobacco industry, efforts toward smoke-free laws have moved slowly. The industry has been actively fending off such laws for decades: for example, a 1989 Philip Morris corporate affairs plan stated an objective "to limit the introduction and spread of smoking restrictions and maintain the widespread social acceptability of smoking in Asia."[100]

In 1999, under President Habibie, Indonesia passed its first law regarding smoking which set maximum tar and nicotine levels and banned smoking in public places including health facilities, religious facilities, schools, and public transportation. However, the law lacked implementation guidelines and penalties for noncompliance, and enforcement was uncommon.[66] Also, contrary to best practices in tobacco control, the law allowed for designated smoking areas. In 2000, under President Wahid, the nicotine and tar limits portion of the law was delayed. In 2003, under President

Megawati, the limits on nicotine and tar were eliminated, and replaced with a mandate that nicotine and tar levels be printed on cigarette packages, which the industry has used to imply low-tar kreteks are safer. It is noteworthy that the 2003 law was passed while many of Indonesia's top public health officials were in Geneva at FCTC negotiations.[66]

The newest national development related to SHS is article 115 of Indonesia's 2009 Health Law, which requires most public spaces to be smoke-free, but again allows for designated smoking areas in workplaces and public places. The law provides no specifics about enforcement or penalties. For the smoke-free component of the law to have effect, local governments must pass laws implementing it and there is no deadline by which they must do so.[101] In a minor public scandal, a clause in the Health Law which stated that nicotine is addictive was surreptitiously removed between when the law was passed and when it was to be signed.[102] After an outcry from the tobacco control community, the clause was restored.[96] In 2013 and early 2014 there was movement toward Indonesia signing the FCTC, which would necessarily include agreement to pass stronger smoke-free laws, but this signing has not been accomplished as of July 2014.

Bogor City

Some Indonesian cities have recently begun to enact and implement their own smoke-free legislation. The first city to implement a comprehensive smoking ban was Bogor City, located in the province of West Java, 37 miles south of Jakarta. The city has a population of 949,000[103] and is well known for its large botanical garden Kebun Raya Bogor, which first opened in 1817, and now contains over 15,000 species of trees and plants. Nicknamed *kota hujan* (city of rain) for its nearly daily rainfall, Bogor is also home to a large presidential palace. The air in Bogor is notably cleaner than that in

Jakarta, partially because the city bans the *bajaj* (auto-rickshaws) that heavily contribute to the air pollution in other places. The clean air and lush environment make Bogor a common choice for the location of meetings and vacations. Aside from a small home industry in kretek production and the usual distribution and retail operations in any city, the tobacco industry has limited presence and power in Bogor.

The city is governed by a mayor and a city parliament. The previous mayor, Diani Budiarto (in office 2004-2014) was a strong supporter of tobacco control and phased out tobacco billboards and events and advocated for smoke-free legislation. Bogor City passed its first smoke-free law in 2006, but the law was vague and lacked details about penalties for noncompliance. In 2009, a confluence of factors helped set the stage for a new, comprehensive law: international NGO support, regional interest in a smoke-free law, and a supportive mayor. Momentum for a new law was built with support from the Bloomberg Initiative working with the Union, IGTC, and the local NGO No Tobacco Community. In June 2009, the Union and No Tobacco Community worked with the city health department to conduct a public opinion poll of 405 randomly-selected city residents (237 males, 168 females).[104] The results were very positive with high support for bans in workplaces (95%), restaurants and eating places (84%), health facilities (98%), shopping centers (88%), academic institutions (97%), religious venues (96%), and public transportation (96%). Support was notably strong among current smokers, with 91% (166 of 183) supporting a smoke-free law. Residents also said that they would increase their visits to restaurants and bars if the law was passed. As additional data for advocacy, the city health department worked with IGTC and the Union to measure particulate matter levels in 30 venues between August and October, 2009. It was found

that in less time than it takes to eat a meal in some venues (30 minutes), a patron would be exposed to more smoke than is acceptable for a whole day (25 μg/m³) by WHO air quality guidelines.[105] Particulate matter levels were highest in entertainment venues, followed by restaurants, government offices, and hospitals.[106] Bolstered by these statistics, the mayor worked with city legislators to pass the smoke-free law (Local Regulation 12 of 2009), which took effect on World No Tobacco Day, May 31, 2010. The law prohibits smoking in the following eight major types of venues:

- public places, including markets, amusement venues, hotels and restaurants, city parks, recreational places, bus shelters, and railway stations
- workplaces including civil, military, private offices, and industrial facilities
- worship places, of any faith
- playgrounds and children's gathering places
- public transport
- educational places, including universities
- health facilities, including hospitals and public and private clinics
- sports facilities

The smoke-free sign required in these venues is shown in Appendix A. The law also prohibits advertising, promotion, and selling of tobacco products in all but the first category of places. The political debate in Bogor's parliament involved great controversy about whether designated smoking rooms should be allowed. To break the gridlock, a compromise was made that the law would be passed with the criteria for designated smoking areas to be determined later by the mayor. Mayor Budiarto's eventual criteria effectively eliminated smoking areas. In Bogor, the smoke-free law is enforced by the

civil order police and communicated to the public by the health department. Bima Arya Sugiarto, Bogor's new mayor (2014-), has pledged to continue supporting the smoke-free law, recently stating his goal for venues to achieve 80% compliance.[107]

Bogor, as a mid-size urban center, can be an example for Indonesian cities seeking to become smoke-free. The lessons learned in Bogor may also be useful in broader efforts for national smoke-free policies and for smoke-free efforts in other less-resourced cities and countries. Research in the US has shown that smoke-free laws are greatly influenced by political leaders' interpersonal networks with communities that have already passed smoke-free laws.[108] It may be that the "domino effect" that has occurred in the US with smoke-free policies could be replicated in Indonesia. Momentum for such changes is growing: many of Indonesia's provinces and cities have passed smoke-free laws, including Jakarta and Bali. Additional cities are in the process of preparing smoke-free legislation.

RELATED RESEARCH

Likely related to the newness of smoke-free laws in Indonesia, I was unable to find any peer-reviewed journal articles which evaluate Indonesian smoke-free laws or their implementation. However, a few prior studies have examined the perception of smoking in various Indonesian locations.

Previous research relating to perceptions of tobacco use in Indonesia

Rural boys' attitudes towards smoking

Ng and colleagues conducted focus groups with 50 boys ages 13-17 in the rural Purworejo District of Java (280 miles east of Bogor) to learn about their beliefs, norms,

and values regarding smoking.[94] Three focus groups were held with smokers, and three with nonsmokers. The researchers used a thematic discussion guide and also solicited feedback from the adolescents about examples of tobacco advertisements in magazines. Four main themes emerged: First, smoking was seen as a common, cultural habit. Boys who smoke said that "'everybody smokes," citing smoking among family members, teachers, peers, and adults at social gatherings. It was also reported that kreteks are commonly offered to visitors or guests of religious ceremonies. Second, smoking is considered part of manhood; by smoking the youth both assert their masculinity and avoid the impression of being effeminate. A third theme was that although the boys had learned the types of health risks caused by smoking (primarily because of the warning labels on cigarettes), they believed their smoking of a few cigarettes per day was not harmful and that locally-made cigarettes (which did not have the warning labels) were not as harmful. The ubiquity of smoking reinforced the impression that the habit is not dangerous. A fourth theme was that the smoking youth wanted to quit but found it hard to do so. In response to their findings, Ng and colleagues emphasize the need for norms change to end the pro-tobacco perceptions youth receive.

Project Quit Tobacco International

A second source of qualitative information about smoking in Indonesia comes from the NIH Fogarty-funded Project Quit Tobacco International (QTI), an intervention focused on promoting smoking cessation, educating physicians, and increasing tobacco control activism in Indonesia and India.[67] In Indonesia, the program is based in Yogyakarta, a historic city of 1.5 million located 300 miles east of Bogor. In their formative research, researchers conducted 30 interviews with male smokers in

Yogyakarta. Informants were lower- to middle-class and aged 21-40. In the interviews, participants were asked about the risks and benefits of smoking, perspectives on addiction, perceptions of sample advertisements, and brand preferences. The findings were that smoking was seen as a way to control emotions, enhance masculinity, and uphold traditional values while showing modernity and an international image. The investigators also found that the harms of smoking were far underestimated, thought to be limited to cancer, and believed to only occur at high levels of kretek consumption (over 12 kreteks per day).[67] The QTI researchers also conducted four focus groups with male smokers regarding cigarette package design and advertising, and eight focus groups regarding the development of counter-advertising messages, segmenting the groups by socio-economic status and age (18-25 or 26-35).[67] A common message from informants was that smoking was simply part of the Javanese culture. As an indirect response, the QTI staff posed the rhetorical question of which was a greater cultural value, smoking or a man's responsibility for his wife and children.[109] The research team formulated counter-messages highlighting the irresponsibility of exposing others to SHS and promoting smoking cessation as a sign of health consciousness and masculine strength of character. QTI also aimed to get women involved with the message that smoking is not just a men's issue but an issue for women, children, and families as well.

QTI and smoke-free homes

In one sub-project, QTI looked into how best to structure a smoke-free homes initiative. From December 2008 to July 2009, the QTI team surveyed 530 households in Yogyakarta, interviewing men and their wives separately.[110] They found that on average, these men smoked 10 kreteks per day, including four inside the house. Men's reasons for

smoking included: smoking as a friend in times of loneliness, to enhance confidence, to improve concentration, for help in working hard, and to control emotions. When asked, 85% of women said there were no rules regarding smoking in the home, and for the 15% that had rules, the most common rule was that smoking was limited to one particular room in the house. Most women (70%) disapproved of smoking in the home, and 65% had directly asked their husbands not to do so, but most were ignored. Some women (25%) thought that smoking could cause a mild illness, and 65% thought that it could cause a serious illness. QTI proposed the idea of a community-wide initiative in which the community agreed that there would be no smoking within homes, in an attempt to mobilize collective efficacy where individual self-efficacy was low.[110] In the interviews, 90% of the women said they would support such an initiative, and 85% said they would be willing to put a sticker on their door to indicate that they were part of the initiative. About half (51%) of the women thought their husbands would comply, 35% said they would not, and 14% were unsure. When the men were asked, 68% said they would comply if the initiative was agreed upon by community leaders. Most men (75%) said SHS may be harmful to others, but they were unsure how much exposure was harmful or what illnesses it might cause. Many thought that smoking near a fan or near an open window was a sufficient solution to reduce the risk. Men also expressed concerns about the social difficulties they would face if guests came and expected to be able to smoke. In their interviews, some informants thought that it was good to expose children to smoke, so that they would not be bothered by it in places where there was smoking.[111] Other cultural understandings that arose in the research were that drinking water could flush cigarette toxins out of the body, that a person will be fine as long as he smokes a brand of

cigarettes that is suitable (*cocok*) for his body, and that some brands of kreteks are beneficial for people with respiratory illness.[111,112] The general theme was that smoking is acceptable for healthy people, and quitting smoking was taken as an indication that one was sickly.[111] Additionally, smoking was described not as addictive, but as being too pleasurable to stop. In mid-2010, QTI launched a pilot project in Yogyakarta for smoke-free communities based on their research.[113]

Previous studies using qualitative methods to evaluate smoke-free laws

Qualitative methods have been used in various ways relating to smoke-free laws in other countries and environments. For example, in Lebanon, researchers conducted interviews and focus group discussions with management, staff, and clients at nine hospitality venues and nine workplaces where smoke-free policies were voluntarily enacted.[114] They found that the primary barriers to success were pro-smoking social norms, and, in workplaces, the addictive nature of tobacco use, and that nonsmokers felt uncomfortable speaking up because they wanted to avoid conflict with their colleagues. In Scotland, a study using pre- and post-legislation interviews with 62 bar patrons found that social aspects of smoking and smoking bans were more important to interviewees than the health risks.[115] In Armenia, researchers conducting a mixed methods study of focus groups of government officials and surveys of 243 businesses found that while participants were generally aware of the hazards of SHS and supported the idea of smoking restrictions, they were unaware of the new law.[116] These studies show the viability and usefulness of using qualitative methods to understand public response to smoke-free laws.

There are few scientific articles presenting qualitative findings about the implementation of smoke-free laws. I am unaware of any such research in LMIC that includes the three core stakeholder groups of city and NGO leaders, venue managers, and members of the public. Research in Indonesia is particularly important as the country is home to the third largest population of smokers in the world,[72] and yet has minimal tobacco control measures. Bogor City was specifically chosen for this study because it was the first city in Indonesia to pass a comprehensive smoke-free law.

RESEARCH AIMS

The goal of this research project was to learn about the implementation of Bogor's smoke-free law from a variety of perspectives in order to understand how compliance with the smoke-free law could be improved and inform best practices for implementation efforts in other cities and other LMIC.

The original aims at the start of the research were to explore how Bogor's leaders took culture into account in implementing their law, how international best practices should be modified to take into account social and cultural context, and how the norms about public smoking in Bogor could be shifted toward compliance with the law. Throughout the course of the research, some aspects of these aims yielded little data, while others, such as the influence of the cultural context of religion, and the goal of understanding norms change, remained fruitful directions. In the course of the project, it also emerged that a research agenda for the field would be useful.

Therefore, the final aims for this project are as follows:

1. To conduct a systematic literature review and create a research agenda regarding implementing smoke-free laws in LMIC.

A. To review the literature and report the current state-of-the-science in implementing smoke-free laws in LMIC.

B. To highlight gaps in what is not known and make recommendations for the most urgent research needs.

2. To understand the current social norms around public smoking in Bogor and make recommendations for how to increase compliance with the smoke-free law, using the theory of normative social behavior as a framework.

A. To map findings about current norms of public smoking in the context of the smoke-free law in Bogor to the theory of normative social behavior.

B. To use the theory of normative social behavior to make theoretically-grounded recommendations for increasing compliance with the smoke-free law.

3. To describe the impact of the Muslim leaders' pronouncements about smoking on compliance with Bogor's smoke-free law.

A. To determine the role of smoking in modern Indonesian religion and society.

B. To document Bogor's residents' beliefs and perspectives about the religious status of smoking and smoking in public.

C. To assess the impact of religious organizations' rulings on compliance with the smoke-free law in Bogor.

ORGANIZATION OF CHAPTERS

Following this introduction, the second chapter covers the methods used in the research planning, data collection, data analysis, and dissemination. The dissertation continues with the text of three discrete research manuscripts. The first manuscript (Chapter 3) presents a systematic review of the current state-of-the-science in the implementation of smoke-free laws, and then proposes a research agenda for how to move the field forward. The next two manuscripts (Chapters 4 and 5) present findings and analyses from original qualitative fieldwork conducted in Bogor City, Indonesia from March thru August 2012. In the first of these (Chapter 4), I show how the data collected about social norms of public smoking map onto the theory of normative social behavior, and I provide theory-based recommendations for shifting the social norms in Bogor toward greater compliance. In the final manuscript (Chapter 5), I present findings of how Muslim leaders' statements on smoking affected compliance with the smoke-free law in Bogor. Chapter 6 concludes the dissertation, synthesizing the results, discussing ways in which the manuscripts interweave, and suggesting topics for further research.

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CHAPTER 2.

RESEARCH METHODS

PROJECT CONCEPTION & PLANNING

The idea for this dissertation project came out of discussions I had with Steve Tamplin of the Johns Hopkins Bloomberg School of Public Health Institute for Global Tobacco Control (IGTC) in March 2010. Mr. Tamplin had explained that IGTC had been working with the International Union Against Tuberculosis and Lung Disease and other partners in Indonesia on air monitoring work and helping Bogor City implement a smoke-free law. He explained that there was work that could be done helping to monitor the progress of the law. We decided on a work agreement, and then I travelled to Indonesia from July 27-August 13, 2010 to meet with the leaders involved in tobacco control in Jakarta and Bogor and to provide technical assistance. That experience, combined with monitoring surveys later in 2010 and in 2011 revealed that compliance with the smoke-free law was quite low in many public places, especially restaurants, religious places, and city offices. After returning to Baltimore, I met with Mr. Tamplin and Dr. Joanna Cohen to discuss various projects that might help the scientific community learn more about the best ways to implement smoke-free laws in low- and middle-income countries and at the same time assist Bogor in improving implementation of their law. At this time I also conducted basic background literature reviews on smoke-free laws, Indonesian culture, and policy implementation. I also began the study of the Bahasa Indonesia language with the aid of Rosetta Stone software and private tutoring from a native Indonesian speaker in Baltimore.

Initially we conceived of a mixed-methods project that would include both qualitative in-depth interviews and focus groups to learn about implementation of the law and quantitative air-quality monitoring to assess changes in secondhand smoke exposure in public places after the implementation of the law. However, during discussions in my preliminary oral exams in August 2011, we decided that the air quality monitoring would not be especially useful and that it would be more valuable to focus on the qualitative pieces of the project. I then worked with Dr. David Jernigan, Dr. Shannon Frattaroli, Dr. Katherine Smith, and Dr. Cohen to create a feasible research project focusing on understanding implementation of Bogor's smoke-free law. In line with current thinking in policy implementation research that combines top-down and bottom-up approaches, the plan was to conduct interviews with city leaders, focus groups with venue managers, and focus groups with city residents. This qualitative-focused proposal was discussed at my school-wide preliminary exams in December, 2011, and then reworked based on committee feedback. I next worked with Dr. Cohen to develop a budget using funds IGTC had received from the Bloomberg Initiative to Reduce Tobacco Use. I then began the process of submitting required documents to the JHSPH Institutional Review Board (IRB). The JHSPH IRB required local IRB approval for international projects before giving their final approval, and this I sought from the Universitas Muhammadiyah Yogyakarta (UMY), a university in Yogyakarta, Indonesia with which IGTC had a research partnership. While contacts at UMY were supportive, it proved difficult to finalize the documents from afar and so we decided I would make the final arrangements in person. After presenting a poster at the 2012 World Conference on Tobacco or Health in Singapore, I travelled to Indonesia to finalize the IRB paperwork and conduct the

research fieldwork. For the fieldwork data collection component of the project, I lived in Indonesia from March 25 through August 6, 2012.

Research Questions

As noted in the previous chapter, the goal of this research project was to learn about the implementation of Bogor's smoke-free law from a variety of perspectives in order to understand how compliance with the smoke-free law could be improved and to inform best practices for how other cities and countries could more effectively implement their own smoke-free laws. The original research questions used to direct this project were:

1. How did Bogor's leadership take social and cultural context into account in implementing the smoke-free law?

2. Learning from Bogor's experience, how should international best practices for the implementation of smoke-free laws be modified to take into consideration social and cultural context?

    2a. What role has the association of smoking with masculinity played in affecting implementation of the law?

    2b. What role have the messages from Muslim organizations played in affecting implementation of the law?

    2c. What other aspects of the social/cultural environment are important?

3. What is the relationship between the new smoke-free law and the normative environment and what steps can be taken to shift the norms to align with the law?

    3a. What are the current perceived injunctive norms and descriptive norms around smoking in public places in Bogor?

    3b. How have these norms changed since the enactment of the law?

    3c. What leverage points can be used to further move the norms to align with the law?

These research questions were used to guide the choices of data collection method and provide a framework for the research.

Development of the interview and focus group guides

Recruitment materials were designed for the contact of potential interviewees and focus group participants (Appendix B). Interview and focus group guides (Appendix C) were written to address the research questions within the natural flow of conversation. Three versions were made: one for the interviews with city leaders, one for focus groups with venue managers, and one for focus groups with city residents. The plan for possible interviews with venue managers was to essentially use the same questions as in the focus group guide for venue managers, but rephrase the questions to be more specific to the individual's own business and perspective. The guide for city leaders began with some background questions about the role the leader had in the development and/or implementation of the law, what considerations they had at the time implementation was being planned, and what their perspective is about the law. It then asked about the perceived gender norms around the law, what perceived impact religious organizations have had, the current progress of implementation, and any suggestions the interviewee had about how the law could be improved. This interview guide for leaders was to be used as a general outline, and built upon with questions specifically relevant to the role of the informant. The focus group guides for the venue managers and city residents had similar arrangements of questions, with some tailoring for the venue managers. The basic arrangement of the questions was:

- A few introductory questions to gather basic information about smoking in public in Bogor, put the participants at ease, and give the participants a general sense of the discussion topics. Some of these questions related to social norms.

- Questions focused on social norms about smoking in Bogor, including questions designed for discussion about photographs of 5 sample venues (described in detail later in this chapter);
- Questions about participants' awareness of the smoke-free law and how it was presented to the public (or venue managers);
- Questions about the participants' opinions on the law and how they think the law has been received by the general public, including questions on religious influence and gender differences;
- Questions about whether participants had seen social or legal enforcement of the law;
- Solicitation of advice about how the law could be more successfully implemented;
- For venue managers only: Questions about whether they had enforced the law on patrons, how smokers had responded, and questions about who they thought was responsible for enforcing the law.

After the questions had been written and refined, and checked to make sure they sufficiently covered the research questions, they were translated into Bahasa Indonesia, the official language of Indonesia, by a professional Indonesian translator. The guides were then put aside for IRB review while I travelled to Indonesia to finish securing IRB approval.

FIELDWORK DATA COLLECTION

Groundwork in Indonesia

IRB approval

In Indonesia, after some initial meetings with tobacco control colleagues in Jakarta and Bogor, I flew to Yogyakarta for a week to work on finalizing IRB approval (Figure 1). The tobacco control partners at UMY were quite supportive, and the school's IRB reviewed and approved the study protocol. However, when I returned to Bogor, a professor at UMY who had agreed to be a my in-country project advisor emailed to say that she no longer felt comfortable with her role. An alternative arrangement was made with the JHSPH IRB where Dr. Jernigan would supervise the project from the US, and I would be in regular Skype and email communication with him.

Figure 1. Map of Java, indicating Jakarta, Bogor, and Yogyakarta.

Training of focus group facilitators

I then began the process of networking among Bogor City Health Department officials and tobacco control advocates I had met in 2010 to arrange interviews with city leaders. I also talked with JHSPH's Center for Communications Programs (CCP) office in Jakarta about suggested focus group facilitators, as CCP had recently conducted focus groups in Bogor and Palembang. I recruited and hired five focus group facilitators (three women and two men). Three of these facilitators had previous experience conducting

research focus groups, a fourth one learned quickly and led one focus group after experiencing a number of them, and the fifth person acted as a note-taker only. I conducted a two-day training session on focus group facilitation and research ethics. In the process of the training, the facilitators practiced recruitment and group facilitation skills. I also asked the facilitators to review the focus group guides to let me know if any of the questions should be reworded to be culturally appropriate, and I made a minor change to one of the information collection forms based on their feedback (changing wording from asking if participants were member of "any Muslim organizations" to asking if they were members of "any religious organizations"). These and a few other minor amendments to core documents were IRB approved before field use.

Cultural immersion

To gain exposure to Indonesian culture and lifestyles, my accommodations for the bulk of my fieldwork were with a middle-class Indonesian family in Bogor which I met through a friend of friend. Living with the family also provided me an opportunity to practice my Bahasa Indonesia language skills and learn more local terminology. In the household were Pramana (pseudonym) who was a male in his 30's, and Pramana's sister, niece, mother, and uncle. Pramana's father had passed away a few years prior. I stayed in a guest room in the family's home, and participated in the family's traditional meals and activities, including attending an Indonesian wedding, a funeral, and other social events.

Data collection

In my early conversations with the Bogor City Health Department officials and leaders of the non-governmental organization (NGO) No Tobacco Community, they described how they were finding it especially difficult to implement the smoke-free law

in restaurants and shopping areas. They agreed that these venues would be a good place to focus my research, and would be more accessible and less politically-challenging than areas such as religious venues or city offices. I therefore focused my data collection on compliance in these venues. In all there were four components of the Indonesia data collection:

1. Interviews with leaders

Working with an interpreter, I conducted interviews with key leaders involved in developing and implementing the smoke-free law. I found it beneficial to conduct these interviews personally so I could tailor the interview questions to the interviewee's role in implementing the smoke-free law. I started with a list of 18 individuals suggested by the Bogor City Health Department and other early advisors. I then expanded the list based on names of other appropriate people suggested by the interviewees. Interviews were arranged with the assistance of the Bogor City Health Department and local tobacco control advocates. In all, I conducted 35 interviews with 35 individuals (Table 1) (five people were interviewed twice, and five interviews had two interviewees. I preferred to conduct in-depth, one-on-one interviews, but in five cases, the participants felt more comfortable with a colleague or subordinate included, and it was felt socially and culturally inappropriate to tell them that this would not be allowed.) Five key leaders (2 health officials, 2 NGO leaders, and the mayor) were interviewed twice to gain a deeper understanding of their perspectives and experiences and to address questions that arose from the other interviews. The interviewees represented the following categories of parties:

Bogor City government
- mayor
- health department
- public order police
- legal office
- city revenue office
- transportation department
- city parliament

Local government (sub-city level)
- local administrators

National government
- advisor for national parliament
- former member of national parliament

Local NGOs
- local tobacco control organization
- local social/health NGOs
- association of local organizations interested in tobacco control

Professional organizations
- public transportation association
- hotel and restaurant association
- midwives association

Religious organizations
- Muhammadiyah
- Nahdlatul Ulama (NU)

Media
- Radar Bogor newspaper
- Journal Bogor newspaper

Other
- independent tobacco control advocate
- mayoral candidate
- cigarette vendor in a smoke-free area
- interpreters
- focus group facilitators

The interviews with leaders lasted an average of 75 minutes (range: 27 to 151), depending on the role the interviewee played in the implementation of the law, the interviewee's available time, and the natural flow of the conversation. Participants were provided with a Johns Hopkins souvenir for their time.

2. Focus groups with residents

Starting after the interview process of key leaders had begun, and continuing concurrently, the focus group facilitators and I scheduled focus groups with members of the general public of Bogor. Based on previous research[1] and discussions with local research professionals, we decided to stratify these focus groups by age, gender, and smoking status (Table 1). We also decided to recruit from both middle- and lower-class areas to include a reasonable reflection of the general population. To encourage the participants to feel more comfortable talking freely, we matched the gender of the focus group facilitator and note-taker to the gender of the participants whenever possible. Additionally, we decided that I would not interact with the participants during the

recruitment or focus groups because as a foreigner in a city where foreigners were somewhat unusual, I would be too much of a novel distraction (However as each focus group concluded I would visit the group to answer any questions they had about the research).

Table 1. Focus group and interview participants

Focus groups with city residents

Gender and Smoking Status	Ages	Recruitment Venue	No. Recruited	No. Attended
Male smokers	18-25	Mall	12	10
Male smokers	18-25	Mall	10	9
Male smokers	26+	Mall	12	8
Male smokers	26+	Mall	10	5
Male smokers	18+	Market	10	7
Male nonsmokers	18+	Mall	10	7
Female smokers	18+	Mall	10	8
Female nonsmokers	18-25	Mall	12	10
Female nonsmokers	26+	Mall	9	7
Female nonsmokers	26+	Mall	10	10
Female nonsmokers	18+	Market	10	8
			115	**89**

Interviews with city leaders

Group	No. Interviews	No. Individuals
Government	19	19
NGOs	5	4
Associations	3	3
Religious	2	3
Media	2	2
Others	4	4
	35	**35**

Interviews with venue managers

Venue type	No. Interviews	No. Individuals
Restaurants	11	13
Malls	4	4
	15	**17**

Our first recruitment site was a popular middle-class mall. I guided the focus group facilitators as they did the recruitment. Potential participants were screened using three questions for age, gender, and smoking status in order to build stratified groups. People were ineligible to participate if they were under age 18 or if they were an employee of a tobacco company (as they might have a conflict of interest). Recruiters collected the names and phone numbers of the invited participants and gave the potential participant a reminder card. I asked the facilitators to pick one place near the escalators and ask every Nth person if they might be interested. However, this became impractical because mall patrons were focused on their own conversations or activities, and some improvising had to be done, such as asking people who were sitting down if they were interested, or, when recruiting women smokers, going to the outdoor patio where people were smoking. We recruited participants a few days before each scheduled focus group, so that participants would be more likely to know their schedules. We aimed to recruit 12 participants for each group, with the expectation that 8-10 would attend. In general, it was easier to recruit men than women, as the facilitators explained to me that women typically stay at home to take care of their children and are more hesitant about participating in public activities. However, with perseverance, we were able to meet our recruitment goals. The focus group facilitator assigned to lead each group called or sent a text message to each of the participants the night before to remind them of the event. Recruitment at the lower-class traditional market followed the same general approach.

We held 9 of the focus groups at a coffee shop in the same mall where primary recruitment was done. I negotiated an agreement with the coffee shop owner to rent the space and close it to the general public during the focus group sessions. The other two

focus groups were held in a rented space in a building owned by a women's organization that was near the traditional market. Each focus group was led by one of the trained focus group facilitators in conjunction with a designated note-taker. The facilitator's role was to guide discussion in a way that addressed the agreed upon questions, to gently encourage all present to speak, and to maintain a reasonable flow of conversation. The note-taker managed the primary and back-up digital recorders, and kept a running list of first initial of each speaker and the first word or two each speaker said in each comment, to ease transcription. As participants arrived at the venue, they completed an individually-guided informed consent process with one of the focus group facilitators and were asked if they had any questions before being asked to sign the consent form. Participants were then asked to create a pseudonym for use during the focus group and to write this pseudonym on a name card at their place at the table. When a sufficient number of participants arrived (usually within a few minutes of the agreed upon start time), the facilitator began the focus group session. As part of the semi-structured focus groups, we used a photo elicitation technique,[2] asking the participants their opinions about the appropriateness and legality of smoking in places pictured in five photos (See Supplementary Materials 2 of Chapter 4). I had taken the photos the week before and carefully chosen examples that represented a variety of settings, including indoor, outdoor, and quasi-outdoor spaces (e.g. open air restaurants). The focus group sessions lasted an average of 126 minutes (range: 81 to 160). Participants were provided with snacks and compensated for their time and transportation costs.

3. Focus groups/interviews with managers

An attempt to conduct focus groups with venue managers was not successful: none of the seven recruited participants attended. In debriefing with the research team, it was felt that managers were very busy and were probably wary to attend a discussion about a law that their venue was likely ignoring. We had planned for this contingency, and so in place of focus group discussions, I conducted individual interviews of managers, an approach that was well received. For these interviews, I first selected two areas of Bogor with high concentrations of restaurants, and then walked door to door in each area, approaching managers at an array of venue sizes and types. At each venue, I asked to speak with a manager or the highest ranking available person. At approximately half of the venues we visited, participants were willing to be interviewed. During the consent process, most (11) of the interviewees agreed that I could record their interview, for the remaining 4 who asked not to be recorded I took handwritten notes. One interview was conducted partially in English because the interviewee was nearly fluent, and the other 14 were conducted solely in Bahasa Indonesia via an interpreter. I encouraged participants to choose interview areas within their venue that were relatively private and quiet. In all, I conducted 15 interviews with 17 managers (Table 1) because there were two situations in which there were two interviewees (a small venue where the husband and wife were owners and another where an interviewee felt more comfortable with a colleague at their side). There were 13 managers/employees from restaurants, representing a variety of sizes, locations, price-ranges, and venue types (open air, air-conditioned, etc.). I also talked with 4 managers of shopping malls, two of which catered to middle-class residents and two of which catered to more upper-class residents (for

comparison, a middle-class family might make ~$5,000 per year and own a motorcycle, whereas a more upper-class family might make ~$20,000 per year and own a car). Interviews with managers averaged 41 minutes (range: 13 to 67 minutes). Participants were provided with a Johns Hopkins souvenir for their time.

4. Additional resources

With the assistance of some tobacco control advocates, I also collected as much ancillary information as possible, including:

- media clippings of stories about Bogor's smoke-free law (n= ~250 that had been previously aggregated by a communications staff member)
- photos I took of tobacco advertisements, restaurant venues, or other relevant scenes of interest (n= ~1,800)
- health communication materials (stickers, posters, brochures)
- sample cigarette packages (n= 71)
- books from the local bookstores which discussed tobacco use (3 pro-tobacco, 1 anti-tobacco, all in the language of Bahasa Indonesia)

QUALITATIVE DATA ANALYSIS & DISSEMINATION

Transcription and translation

The focus group discussions were transcribed by the facilitators and translated into English by professional translators. These translations were checked by a second professional translator for thoroughness and accuracy. Since the interviews involved live interpretation (i.e., I was conducting the interview through an interpreter translating each question and response as they occurred), the recordings contained alternations of English

and Bahasa Indonesia. The English sections were transcribed and checked against the recordings. As needed for quotations, specific Bahasa Indonesia sections were transcribed and re-translated by a professional translator for greater accuracy. Key terms in Bahasa Indonesia and Arabic were kept in their original language especially when there were not directly equivalent words in English.

Data analysis

The transcripts were iteratively coded using ATLAS.ti 7.0 qualitative analysis software (ATLAS.ti GmbH, Berlin) using a thematic content analysis strategy,[3] seeking both recurrent themes and unique answers relating to the research questions. The codebooks are included in Appendix D. First, I read through the focus group and interview transcripts to see the ideas presented and have a general understanding of the data. Then I developed high-level codes around the research questions, and lower-level codes for common themes within each question. With these codes I conducted a preliminary coding of the focus groups and some of the most relevant interviews. Later after refining the paper topics, I conducted a second round of coding specific to the needs of the social norms manuscript (Chapter 4) and the religion manuscript (Chapter 5). As noted in the manuscript chapters, various methods were used to improve data credibility including stakeholder triangulation and searching for negative cases. I also had some assistance from Indonesian colleagues in order to give additional perspective regarding data interpretation within the context of Indonesian language, religion, and culture.

Dissemination

I was able to share preliminary findings with the head of the health department and the mayor of Bogor in the second round of interviews I had with each near the end of

the data collection. After returning to the US, I compiled a report of findings, had it translated into Bahasa Indonesia, and distributed it to the Bogor City Health Department. Additionally, I plan to publish the manuscripts from this dissertation (Chapters 3-5) in scientific journals for the international tobacco control community. Finally, if possible on future research trips to Bogor, I look to revisit the tobacco control leaders there, and discuss their thoughts about my findings and interpretations.

Ethical considerations

The project and materials were approved by the institutional review boards of the Johns Hopkins Bloomberg School of Public Health and the University of Muhammadiyah Yogyakarta. The project and materials were also approved by the Bogor City Health Department and the Bogor City Office of Unity and Politics. To protect participant confidentiality, all materials with identifying information were kept in a locked cabinet during data collection, and all print and audio files were encrypted with password protection during storage and transit. Identifying information was deleted or destroyed when no longer needed.

LITERATURE REVIEW

Another large component of this dissertation project was the undertaking of a systematic literature review to synthesize what is known about implementing smoke-free laws in developing countries and to create a research agenda. This systematic review included peer-reviewed published academic literature, grey literature (such as dissertations, reports from reputable NGOs, WHO, etc.), and was also informed by my previous work in Bogor. In preparation for the task, I worked with an information

specialist at JHSPH to learn best practices in conducting a systematic review, and refined my search string with the guidance of an additional experienced colleague. The search of the literature was conducted using the following databases: PubMed, Cochrane Reviews, CINAHL, Embase, Global Health (OVID), PAIS International, PsycINFO, Scopus, Sociological Abstracts, and Web of Science. The search string was chosen carefully to be as expansive as needed without being unduly so. The basic concept of the research question was, "What do we know about implementation of smoke-free laws in LMIC?" This was broken down into three main categories of words: 1. implementation (and synonyms), 2. tobacco or smoking, and 3. law (and synonyms). While I considered naming LMIC countries in the search, I found that not all abstracts included the name of the research country. Therefore I decided to manually remove research from high-income countries in a later step. As an example, the full search string for PubMed, after numerous refinements, was:

```
(implement[tw] OR implementation[tw] OR implementing[tw] OR
implemented[tw] OR enforce[tw] OR enforcement[tw] OR
enforcing[tw] OR enforced[tw] OR comply[tw] OR compliance[tw] OR
complying[tw] OR complied[tw] OR "guideline adherence"[MeSH
Terms] OR "law enforcement"[MeSH Terms]) AND (smoke-free[tw] OR
smokefree[tw] OR "smoke free"[tw] OR ban[tw] OR bans[tw] OR
banning[tw] OR banned[tw] OR restrict[tw] OR restriction[tw] OR
restrictions[tw] OR restricting[tw] OR restricted[tw]) AND
(tobacco[MeSH Terms] OR tobacco[tw] OR "tobacco products"[MeSH
Terms] OR smoking[MeSH Terms] OR smoking[tw] OR smoke[MeSH Terms]
OR smoke[tw])
```

The search strings used for other databases were closely matched to this list, generally only requiring alterations to the bracketed search field tags to comport with each database's search system. Using the same search string I found 7 results in Cochrane Reviews, which I considered individually. The number of articles found in the each of the other databases was:

PubMed	1,610
Embase	1,437
CINAHL + PsychINFO	740
Global Health (Ovid)	1,254
PAIS + Sociological Abstracts	180
Scopus	1,995
Web of Science	1,315
Total	**8,531**

The results from each search were then imported into EndNote X4.0.2 (Thompson Reuters, Philadelphia, PA) for deduplication. Within EndNote, I used the settings to remove any duplicates by same title-year-journal, and then those with the same title-year (confirmed visually). This deduplication reduced the number of articles from 8,531 to 3,894. Then the EndNote file was exported into Microsoft Excel 14.0 (Microsoft, Redmond, WA), wherein I conducted a title review. My focus was on studies that might address lessons learned from smoke-free law implementation, problems that have arisen, solutions that have been attempted, and/or research questions that have been posed. I excluded studies that focused on research in high-income countries, institution-level implementation, voluntary smoke-free policies, outdoor smoke-free policies, or smoke-free homes. Initial title review eliminated 2,485 articles, leaving 1,409 articles for abstract review. Abstract review eliminated an additional 1,173 articles leaving 236 for which full-text .pdf files were retrieved and reviewed. For those that were excluded at this point, I noted the reason for their exclusion (the predominant reasons were because they only addressed high-income countries or they did not discuss implementation). For the 20 articles for which full text was not available in English, I reviewed the English abstracts. In the end, 66 articles remained after full text review.

I also reviewed relevant citations from these articles and pulled reports from WHO, the US National Cancer Institute, the US Surgeon General, and major tobacco control NGOs including the American Cancer Society, the Campaign for Tobacco-Free Kids, the Global Smoke-free Partnership, and the International Union Against Tuberculosis and Lung Disease, and the JHSPH Institute for Global Tobacco Control. Of these additional 174 considered articles and reports, 65 were used. Thus the total number considered from the academic and grey literature sources was 131.

I then reviewed these 131 materials to compile a working list of what is known about implementing smoke-free laws, what problems or barriers have been discussed in various countries, and what creative solutions have been used to improve compliance. I also noted explicit mentions of research needs and implicit themes that existed across articles. I used this information to create documents that were used to inform the research agenda manuscript. In doing so, I compared findings across studies in different countries, and across methods, and looked at similarities and differences in lessons learned in various studies. As noted above, the resulting manuscript (Chapter 3) will be disseminated to the scientific community via a journal article.

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CHAPTER 3.

SMOKE-FREE LAWS IN LOW- AND MIDDLE-INCOME COUNTRIES: AN IMPLEMENTATION RESEARCH AGENDA

INTRODUCTION

Globally 40% of children and one-third of adult nonsmokers are regularly exposed to secondhand tobacco smoke indoors.[1] This toxic exposure leads to 603,000 deaths and 10.9 million disability-adjusted life years lost annually.[1] Reducing exposure to secondhand smoke could prevent many of these deaths. Smoke-free laws banning tobacco smoking in public places and workplaces are one strategy for reducing exposure, and are effective in reducing exposure to smoke,[2] reducing smoking prevalence,[3] denormalizing tobacco use,[4] and potentially discouraging youth initiation.[5] Smoke-free laws are cost-effective[6-8] as they are self-enforcing—if a smoke-free norm can be established, smokers are socially pressured to follow the law.[9] The World Health Organization (WHO) recommends all countries implement comprehensive smoke-free laws that have no exemptions or allowances for designated smoking areas.[10] As of January 2014, 92 countries had passed smoke-free laws; in 62 countries, these include restaurants and bars.[11] By signing the WHO Framework Convention on Tobacco Control (FCTC),[12] 178 countries have agreed to implement smoke-free laws,[13] although accountability is limited.[14] Most of the first smoke-free laws were passed in high-income countries (HIC), where they have generally been popular with the public and achieved and maintained high compliance.[10] Starting with Uruguay in 2006, some low- and middle-income countries (LMIC) are now implementing comprehensive smoke-free

laws. This is important as the tobacco epidemic and resulting deaths have shifted to LMIC, with almost 80% of tobacco-caused deaths occurring in these countries.[15]

Implementation of smoke-free laws in LMIC has been mixed. WHO has called for parties to the FCTC to conduct relevant research, share best practices, and assist LMIC with implementing effective tobacco control measures.[16] Comprehensive guides[10,17,18] and workshop programs[19,20] have been created based on lessons learned in implementing smoke-free laws in both HIC and LMIC. However, there remain important gaps in our knowledge about how to implement smoke-free laws in LMIC most effectively, when there may be significant differences in resources and priorities, social and cultural contexts, politics and economics, and expectations and norms as compared with HIC.[21]

The enormity of the tobacco epidemic in LMIC and the mixed success in implementing smoke-free laws in LMIC to date give urgency to filling these gaps. Previous tobacco control[22-24] and non-communicable disease[25] research agendas have not addressed this topic specifically. Here we present a synthesis of what is known about smoke-free law implementation in LMIC and propose a research agenda. Our aims are to (1) review the literature and report the current state-of-the-science in implementing smoke-free laws in LMIC; and (2) highlight gaps in what is known and make recommendations for the most urgent research needs.

Methods used to build this research agenda

We reviewed published academic and grey literature, and compiled lessons learned from first-hand experience working on smoke-free implementation in LMIC. Beginning with a systematic review in PubMed, Embase, Cochrane Reviews, CINAHL,

Global Health (OVID), PAIS International, PsycINFO, Scopus, Sociological Abstracts, and Web of Science, we searched for combinations and suffix variations of the words implementation/enforcement/compliance with smoke-free/ban/restriction and tobacco/smoking. We included articles that provided lessons learned from practice, problems that have arisen, attempted solutions, and research questions posed regarding smoke-free law implementation in LMIC. We excluded studies focused on research in high-income countries, institution-level implementation, voluntary smoke-free policies, outdoor smoke-free policies, or smoke-free homes because these topics were outside our focus on city- or higher-level implementation of indoor public smoke-free policies. The search yielded 3,894 unique articles, which reduced to 1,409 after title screening, 236 after abstract screening, and 66 after full text review. For 20 articles in which full text was not available in English, we reviewed the English abstracts. As a second major data source, we reviewed relevant citations from the found articles and pulled reports from WHO and tobacco control non-governmental organizations (NGOs). Of these additional 174 publications, 65 met the inclusion criteria used in the academic literature review, bringing the total number of search-based sources to 131. Additionally, we incorporated relevant findings from our qualitative research on smoke-free laws in Indonesia.[26] This review focuses on post-legislation implementation, that is, putting the policy into practice–including enforcement–to achieve compliance with the law.

WHAT IS KNOWN

Many findings about smoke-free laws in HIC carry over to LMIC

Evidence indicates that smoke-free laws in LMIC can reduce smoke exposure[27-29] and resulting health effects.[28,30,31] Smoke-free laws in LMIC that do not allow for designated smoking areas are easier to implement[32,33] and more effective in reducing smoke exposure.[29,34] Studies in LMIC have shown high levels of public support for smoke-free laws[28,35-40] and that public support increases after implementation.[27,35,41] Where smoke-free laws are not supported, this appears to be due to lack of knowledge about the harms of tobacco use and secondhand smoke.[42] Findings in LMIC are congruent with those in HIC that there is no negative economic impact of smoke-free laws on the hospitality industry.[43,44]

Lessons learned from experience

In addition to the many case studies documenting experiences of LMIC jurisdictions implementing smoke-free laws[31,43,45-55] WHO, NGOs, and the collaborative Global Smoke-free Partnership have compiled lessons learned from various countries.[10,17,18,56,57] These guides suggest the following general attributes lead to successful implementation of smoke-free laws in HIC and LMIC:

- Strong political leadership
- Legislation that is simple, clear, enforceable, and comprehensive
- Thoughtful planning and adequate resources for implementation and enforcement
- Preparing for and countering tobacco industry opposition
- Involvement of civil society in planning and implementation
- Public education and outreach
- Education and consultation with stakeholders
- Monitoring and evaluation[10,17,18,56,57]

Additionally, these documents describe in detail a number of best practices such as engaging in early interagency planning, securing adequate financial resources, assigning enforcement responsibility to the most effective agency, requiring removal of ashtrays from smoke-free areas, framing education messages around the health benefits of the law for workers, focusing enforcement on venue managers rather than individual violators, and providing the public with a way to report violations.[17-19,56,58,59] The reports also discuss supportive communication efforts such as Uruguay's *un millon de gracias* ("a million thanks") campaign,[17] and creative examples of legal approaches such the Burning Brain Society's use of a right to information act to spur compliance in public places in Chandigarh, India.[56] Additional best practices guides address smoke-free communication messaging[60] and evaluation and monitoring methods.[61,62]

The tobacco industry aggressively opposes smoke-free laws

The tobacco industry opposes implementation of smoke-free laws in both LMIC and HIC.[33,63] A 1978 report by the Roper Organization for the tobacco industry's Tobacco Institute described public concern about secondhand smoke as, "the most dangerous development to the viability of the tobacco industry that has yet occurred."[64] Throughout the 80's and 90's the tobacco industry hired consulting scientists in Europe, Asia, and Latin America to promote uncertainty about the harmful effects of secondhand smoke.[65-67] Documented industry tactics to derail smoke-free law implementation include: fallaciously telling hospitality associations that smoke-free laws harm business, organizing lawsuits against smoke-free laws, and attempting to convince legislators to delay or repeal laws or replace them with weaker alternatives [10,18,33,68-71] For example, in Ecuador in 2006, the tobacco industry co-opted the policy-writing process, resulting in a

smoke-free law that did not meaningfully address smoke exposure.[72] When Mexico City was about to pass a comprehensive smoke-free law in 2008, the tobacco industry lobbied for a weaker national law allowing designated smoking areas, and argued this national law preempted the City's law.[33] The industry also provides anecdotal stories to the media that the public does not like smoke-free laws, they are difficult to enforce, and no one is following them.[18,70] Although the tobacco industry is aggressive, their approaches can be rebuffed, and success stories and best practices for responding have been compiled.[73,74]

Challenges faced by implementers of smoke-free laws in LMIC

In 2009, research was conducted to learn about the experiences from 12 African countries.[75] Similarly, in 2010, the Global Smokefree Partnership surveyed 34 key informants representing 16 Latin American countries.[76] Previously mentioned case studies have also described challenges faced. LMIC often have fewer financial, human, and structural resources available than HIC for implementing smoke-free laws.[75,77] Some LMIC face challenges of insufficient will to enforce smoke-free laws, both on the level of national politics and among ground-level implementers.[75] Some challenges are easily faced – for example, the best means for addressing the failings of designated smoke-free areas is to re-write laws to forbid them. Other obstacles, such as lawsuits from tobacco companies, simply have to be defended against and endured. However, despite insights into particular challenges, there is currently no model or framework that sufficiently explains the processes involved in the implementation of smoke-free laws.

PROPOSED RESEARCH AGENDA

Based on the challenges expressed in LMIC and our own working knowledge, below we propose urgent research needs for improving implementation of smoke-free laws in LMIC, with a focus on issues that are feasible and would have a meaningful impact on practice.

1. Determining the most efficient methods of working with limited resources

What are the essential ingredients for effective implementation?

LMIC have limited resources with which to implement smoke-free laws.[75,77] While there are excellent summaries of lessons learned and best practices, these guides and lists contain a great number of detailed recommendations, more than some LMIC may have the resources to enact. For environments where resources are especially limited, refinement of these lists is needed, identifying those recommendations most critical for success. With this information, implementation officials can determine an implementation plan compatible with their resources that covers the most essential recommendations. Interviews and open-ended surveys with tobacco control government and NGO officials and comparative studies across jurisdictions would be good approaches for learning this information.

How should resources be allocated?

Comparative research could also contribute to creating and testing an instrument to assess the pre-law state of affairs, including public awareness of the law, the public's compliance with similar laws, existing experience of enforcement staff, and so on, and to guide allocation of effort and resources in a particular country. With this tool to measure

the needs assessment, strategies can be organized to best address the known weak points and allocate financial and human resources accordingly.

2. How to make the unwilling become willing

In some LMIC, there are problems of will.[76] High-level government officials may lack the political will to put resources, effort, and time into making a smoke-free law work. Also, enforcement officers may not have time or ,motivation to enforce a smoke-free law. Or they may lack the will to enforce a law without confidence that the government will back them if they are challenged.[76] Research is needed on what actions can be taken to inspire the will to enforce a smoke-free law across all levels. Possible solutions may involve actions by civil society that draw attention to the issue or pressure leaders, educational efforts to convince officials of the importance of the law in protecting health, or using the carrot of political recognition and public praise as a motivator. Research into this question might best be done with a historical review of how various jurisdictions have addressed this problem. The reports of lessons learned detail some successful creative efforts by members of civil society to stimulate action by government, holding it accountable for successfully implementing the legislation,[18] but there has been little systematic work to identify which tactics are most appropriate for a given cultural or political context.

3. How to increase compliance with the smoke-free law among smokers

Is soft or strict enforcement more effective?

There are differing opinions as to whether a "grace period" of "soft enforcement," in which reminders are given rather than fines, assists or harms implementation efforts.[10,17,59] On one hand, a "grace period" is a way of educating people who were

unaware of the law, and a reasonable way of dealing with violations due to ignorance.[10] On the other hand, strict enforcement shows that a government is serious about the law, and does not hesitate to enforce it.[17] Another possible approach is to use strict enforcement but allow businesses one formal warning before fines are issued.[17] Research should be done on what methods have been used across jurisdictions, to determine whether soft enforcement or warnings are constructive, if so how long they should last, and whether there are contextual differences across LMIC that indicate when they should be used in a particular jurisdiction.

What are the optimal enforcement mechanisms?

There is also a need for research on the most cost-effective and resource-efficient ways of enforcing smoke-free laws. Should equal effort be put into training city officers, educating venue managers, and communicating to the public about their role in enforcement? How frequently should enforcement be done? What are the most efficient ways to use the different methods of inspection—proactive versus reactive, random versus focused, and overt versus covert?[17] Answering these questions concretely could inform how to best use limited resources. Research in these areas could be done by careful analysis of what has been done across various jurisdictions to date. Additionally, researchers can test new technologies, such as mobile phone apps, for reporting violations, which may support enforcement in relatively inexpensive ways.[78,79]

What tools can be used for increasing low compliance with smoke-free laws?

There are numerous cases where smoke-free laws have been implemented but are not achieving high compliance. An important line of research would developing a set of proven tools for improving compliance in these settings.[80] Some possibilities to explore

include conducting research into the weak points of the particular implementation effort, how to assess the appropriateness of the enforcement agency, how to regroup political will to enforce laws, when to launch a new communication campaign, or how to involve new organizations or constituencies in the enforcement effort. Successful approaches that have been used in Mexico[50] and in India, Philippines, and Egypt[17,18,81] would benefit from replication, refinement, and consolidation into a resource for LMIC countries.

4. The need for a theoretical framework

While the payoff would not be as immediate and direct as for the previous mentioned research topics, it may be possible to fundamentally improve compliance through development of a theoretical framework for smoke-free implementation. This framework would be designed to explain the psychological processes and relevant moderators involved in changing a smoking social norm to a nonsmoking one. Such a framework could inform both communications messaging and how enforcement is done. Sources for theory development could come from a variety of relevant fields including public health, communications, criminal justice, and psychology. Twenty years ago, Pederson and colleagues created a preliminary model hypothesizing that compliance with smoke-free laws is a factor of environmental support, personality, and attitudes, and this work could be revisited.[82] More recently, a qualitative study in Israel used the behavioral ecological model to explore contingencies of reinforcement around noncompliance with a smoke-free law in pubs and bars.[83] Work on the moderators involved in support for and intention to enforce smoke-free laws in Mexico looked at the effects of perceptions of justice.[84] Work has also been conducted in Albania, Bulgaria, and Greece to look into predictors of compliance, as well as nonsmokers' assertiveness to confront smokers.[85-88]

Additionally, researchers found that in Germany, smoke-free laws were more likely to be followed by men with more social capital, who were said to be more trusting and socially inclined.[89] These and other research findings, especially in LMIC, should be synthesized into a new theoretical framework. Within or alongside this framework, the following ancillary topics could be addressed:

- What is the process by which a law becomes "self-enforcing"? Is there a threshold of compliance (80%, 95%?) at which the public's social reinforcement of the law makes it self-enforcing?
- Do differences such as whether a society is collectivist/individualist or the type of governance matter in how a smoke-free law is fundamentally designed and applied? For example, poor compliance with a smoke-free law in China was explained by a strong cultural desire to keep harmony and avoid disputes with others, leaving people unwilling to confront smokers.[30] Are variations in enforcement methods needed for different regions of the world? Also, how should media campaigns be constructed to work within the gender and cultural norms of each society?
- Are different enforcement approaches needed in different venue types? Schools, public transportation, government offices, restaurants, private workplaces, worship venues, etc. have different social and power dynamics that may influence enforcement. For example, business managers can easily chastise smoking subordinates, but restaurant managers may not want to offend customers. Public transportation systems may have users from other jurisdictions unfamiliar with a law.[90] In places of worship, it can be intimidating for city officials to reprimand

religious leaders who violate the law.[91] Understanding these different dynamics could lead to more effective enforcement methods.

- How do other tobacco control measures affect compliance with a smoke-free law? WHO recommendations for tobacco control include a multi-pronged comprehensive set of measures;[92] thus, a smoke-free policy could be packaged with other tobacco control measures such as advertising bans, warning labels, tax increases, or cessation campaigns. How do these other measures impact compliance with smoke-free laws?
- How does use of other tobacco products, such as e-cigarettes or hookah, affect compliance with smoke-free laws? Do such products prevent the social denormalization of tobacco smoking, and does this affect the desire to comply by traditional smokers?

Research that combines analysis of current theoretical models with testing of constructs and analysis of the processes of how social norms interact with other social and psychological processes and mechanisms to maximize compliance could be meaningful. This theoretical framework could provide a foundation for understanding and optimizing the social norms and individual behavior change aspects of implementing a smoke-free law.

CONCLUSION

We believe the research avenues presented can assist in strengthening and streamlining implementation of smoke-free laws in LMIC. We propose research in four major categories: working with limited resources, increasing the will to enforce the law, increasing public compliance, and formulating an instructive theoretical model. We

believe that research in these topics is both feasible and potentially powerful in advancing successful implementation of smoke-free laws in LMIC to protect public health.

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CHAPTER 4.

"THAT'S THE NATURE OF BOGOR PEOPLE": USING THE THEORY OF NORMATIVE SOCIAL BEHAVIOR TO IMPROVE COMPLIANCE WITH SMOKE-FREE LAWS IN A MIDDLE-INCOME COUNTRY

INTRODUCTION

Globally, secondhand smoke causes 603,000 deaths annually, representing 1.0% of all mortality.[1] Laws that protect the public from secondhand smoke are an essential component of a comprehensive tobacco control strategy.[2] Smoke-free laws protect individuals from toxic smoke and reduce smoking rates and the acceptability of smoking.[3-5] At least 22 countries and hundreds of smaller jurisdictions have already enacted smoke-free laws,[6] and all 178 countries that have signed the WHO Framework Convention on Tobacco Control have committed to doing so.[7] In high-income countries where most smoke-free laws originated, compliance has generally been high and laws have been self-enforcing through social pressures.[8,9] However, it has been harder to achieve compliance with smoke-free laws in low- and middle-income countries (LMIC),[10,11] which are now at the forefront of the tobacco epidemic. The cultural milieu in these countries, specifically their social norms, may require more attention.[12] Social norms are especially influential in public behaviors.[13] Smoke-free efforts may benefit from understanding how underlying social norms operate.

Numerous psychological and communications theories have explored the importance of social norms in behavior change.[14-18] Experimental findings on the impact of social norms on behavior have been mixed, possibly because of insufficient

differentiation between two types of social norms: descriptive norms and injunctive norms.[13,19] Descriptive norms are perceptions of what other people do while injunctive norms are perceptions about what one is expected to do.[16] Injunctive norms are enforced by social sanction.[20] The theory of normative social behavior (TNSB) describes how these norms relate to each other, and how they relate to behavior.[18] This theory has been used to predict and make recommendations to discourage alcohol[18,21,22] and anabolic steroid use[23] and encourage water conservation[24] and hand-washing.[25] The theory may also give guidance in how to strengthen compliance with smoke-free laws.

In Indonesia pro-smoking norms predominate and smoke-free laws are nascent. With a smoking prevalence of 67.4% among men and 4.5% among women, Indonesia is home to one of the largest populations of smokers in the world (57 million smokers).[26] Additionally, 98 million children and nonsmoking adults are exposed to secondhand smoke.[27] Most (92%) cigarettes smoked in Indonesia are *kretek*, clove cigarettes, which may be more toxic than tobacco-only cigarettes.[28,29] Influential religious organizations have not been unified in opposing smoking.[30] At the national level, tobacco control is minimal, and a smoke-free law passed in 1999 has not been implemented.[31]

Recently Indonesian cities have taken action. The first city to pass a comprehensive smoke-free law was Bogor, a city of 1 million located 37 miles south of Jakarta. Bogor's smoke-free law took effect in May 2010 and banned smoking and tobacco advertising in most public places including hotels and restaurants, public markets and malls, places of worship, workplaces, schools, hospitals, and on public transportation, with no exemptions or designated smoking areas. An evaluation in February 2012 found that the law was working well in schools and hospitals, but compliance was only 56% in restaurants, 69%

in malls, and 64% in government buildings.[32] The Bogor experience offers an opportunity to learn about changing smoke-free social norms in a LMIC. This paper presents the first application of the TNSB to a smoke-free law. We analyze focus group and interview findings using the TNSB to understand the current social norms in Bogor and suggest ways to improve compliance with the smoke-free law. Our aims are 1) to map findings about current public smoking norms in Bogor to the TNSB framework, and 2) to use the TNSB to develop theoretically-grounded recommendations for increasing compliance with the smoke-free law.

METHODS

Data Collection

We conducted 11 semi-structured focus groups with Bogor residents in July 2012, recruiting from a middle-class mall and a lower-class shopping area. To encourage participants to speak freely, the focus groups were stratified by age, gender, and smoking status. We trained local researchers for two days on recruitment and focus group facilitation. These facilitators conducted the groups in Bahasa Indonesia, the official Indonesian language. They followed a guide developed by MJB and informed by a review of relevant literature to address the research aims and related topics. Additionally, in a process of photo elicitation,[33] participants were asked their opinion about the acceptability and legality of smoking in 5 example settings. Participants were given snacks and compensation (81,000 rupiah, about $8.67) for their time. In conjunction with this focus group data, interviews were conducted with 17 venue managers and 35 non-governmental organization (NGO) leaders and city officials, chosen purposively to add

mid-level and top-down perspectives on the law. This paper is based primarily on the findings from the focus groups, although information from the interviews was used to add additional perspective and enhance credibility by providing methodological triangulation.

Table 1: Focus Group Participants

Gender, and Smoking Status	Ages	Recruitment Venue	No. Recruited	No. Attended
Male smokers	18-25	Mall	12	10
Male smokers	18-25	Mall	10	9
Male smokers	26+	Mall	12	8
Male smokers	26+	Mall	10	5
Male smokers	18+	Market	10	7
Male nonsmokers	18+	Mall	10	7
Female smokers	18+	Mall	10	8
Female nonsmokers	18-25	Mall	12	10
Female nonsmokers	26+	Mall	9	7
Female nonsmokers	26+	Mall	10	10
Female nonsmokers	18+	Market	10	8
			115	**89**

Theoretical Framework

The TNSB posits that the influence of a descriptive norm on an individual's behavior is moderated by injunctive norms, outcome expectations, and group identity (Figure 1).[18] Outcome expectations considered by the TNSB include expected benefits (and costs) and anticipatory socialization (the belief that partaking in the behavior will ease social interactions with others). Group identity is the degree to which people aspire to emulate a referent group and perceive similarity with the group. The TNSB can be used descriptively to elucidate the relationships between social norms and behavior, as well as instructively to identify points of influence for encouraging or discouraging a particular behavior.

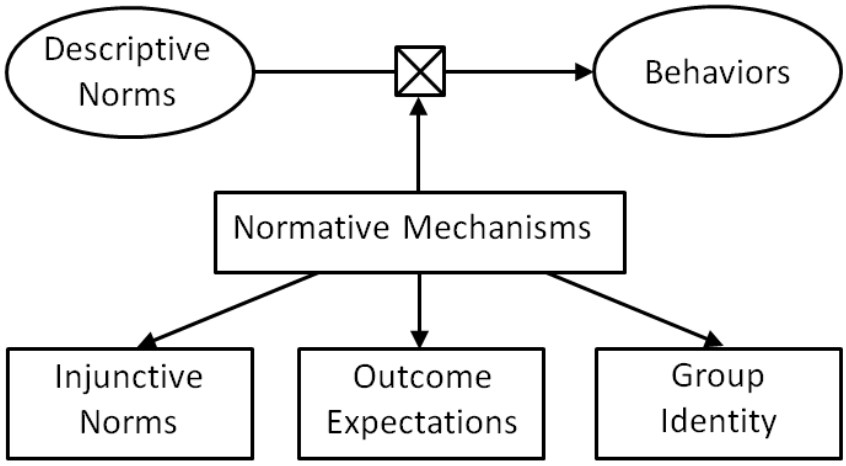

Figure 1. The theory of normative social behavior (Rimal & Real, 2005).

Data Analysis

Digital recordings were transcribed and translated into English by professional translators and checked by an independent second translator. The transcripts were iteratively coded using ATLAS.ti 7.16 (ATLAS.ti GmbH, Berlin) in a process of thematic content analysis.[34] MJB developed the code book, beginning with high-level codes around the research questions and the TNSB, and secondary codes designed to capture common themes and unique responses. Data credibility was improved by stakeholder triangulation, comparing the focus group findings with findings from the interviews. Negative cases were sought out as contrasting perspectives.[35] Indonesian collaborators assisted with interpreting nuances of Indonesian language and culture.

RESULTS

Of the 115 participants recruited for the 11 focus groups, 89 attended (Table 1). Focus groups lasted an average of 126 minutes (range: 81-160). Interviews with leaders

(n=35) averaged 73 minutes (range: 27-151) and interviews with venue managers (n=17) averaged 42 minutes (range: 13-67). The findings provide rich descriptions of current social norms around smoking and offer insight into why smoke-free compliance is low (Figure 2).

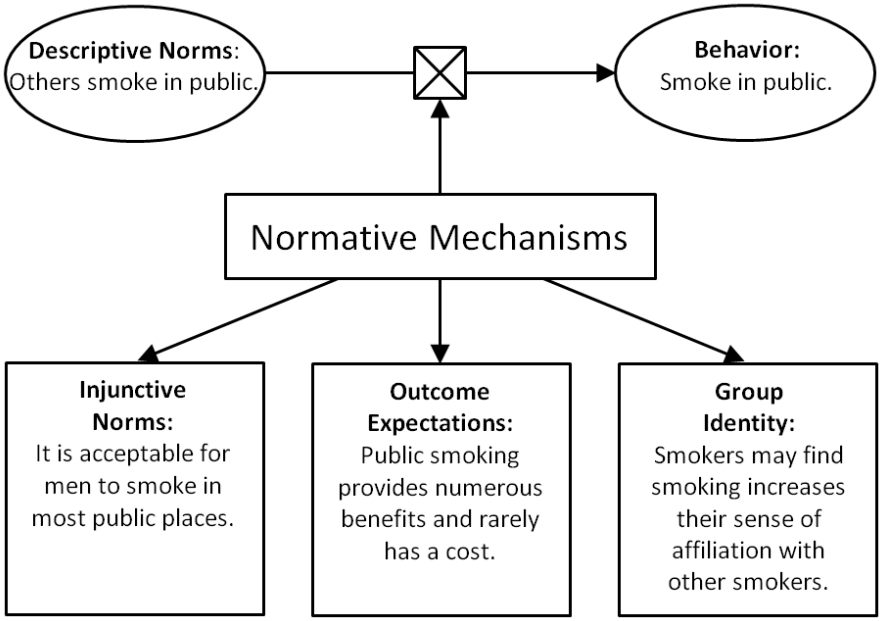

Figure 2. Public smoking in Bogor mapped to the theory of normative social behavior. (Modified from Rimal & Real, 2005).

Descriptive Norm: Public Smoking is Common for Men but not Women

Focus group participants described smoking as part of the Indonesian everyday culture (*kebudayaan*) and longstanding tradition (*tradisi*):

> [I]f we talk about the culture, it is difficult to eliminate the culture itself... [I]t is in our culture that it is a habit to smoke after eating, drinking coffee and smoking, drinking tea and smoking, and reading Koran and smoking...

Participants described smoking as very common in Bogor. A few participants estimated that 75-85% of men and 20-25% of women in Bogor smoke. The smoke-free law was said to have had some impact on public smoking by reducing smoking in schools, hospitals, and, to a lesser extent, on public buses. However the law was viewed as less successful in restaurants and malls. Some participants reported, "it seems like there is no rule at all," either putting the blame for low compliance on the public, "that's the nature of Bogor people," or on the government, "it is useless to make a law when the government is not strict about it." Smoke-free signs were said to be commonly ignored:

> Even if there is a no smoking sign but in the surroundings people are smoking, we will smoke also. Actually, like in this mall, it is a non-smoking area, right? On the second floor there is also a no smoking sign but the employees are still smoking, so like it or not, we follow them, smoking.

Smokers said they know a location is suitable for smoking if they see other smokers present or they see cigarette butts or ashtrays. There was a common perception among residents and leaders that some public officials flout the smoke-free law.

Injunctive Norm: It is Acceptable for Men to Smoke in Most Public Places

Participants described how men are welcome to smoke in public. As one male smoker explained, "in our environment people are all smokers so we don't need to be shy, if we want to smoke, just smoke." On the other hand, female smokers described being reticent to smoke in public, saying that doing so is bad for their image (*jaim*) and not pious (*alim*), and that a woman smoking alone is said to be a prostitute. Most female smokers said they would only smoke in public if they were with other smoking friends. However, one woman shared that she smokes "anywhere, anytime."

There are specific circumstances in which smokers and nonsmokers agreed that public smoking is not acceptable, including around children or pregnant women or in air-conditioned rooms. This norm is sometimes socially enforced. A mother said that if she is on a public bus and someone is smoking, she confronts them:

> I don't want to feel uncomfortable. Whether they like it or not, I don't care. I just tell them to stop smoking...Because I have my children with me. I don't want them to be coughing. It will feel uncomfortable for us and our children.

However, most women said they do not confront smokers, either out of respect for their elders or fear of inciting an angry response. Instead women were more likely to cough or put their *hijab* (Muslim headscarf) over their face to indicate displeasure with smoke. Smokers expressed familiarity with these cues, and said they sometimes comply. One male smoker explained, "[When] someone coughs and covers his/her mouth, sometimes if I am still enjoying myself, I ignore it. But if I see young kids, I will put off the cigarette." Notably, except for a few instances on public transportation, no participants reported asking people not to smoke because of the law; instead the motive was generally comfort. However, nonsmokers and some smokers said they were supportive of a smoke-free law.

In response to the photos of 5 example venues, smokers described more places as acceptable for smoking than nonsmokers, although both groups thought it generally acceptable to smoke in the public venues where there was good air flow. In describing where smoking was acceptable, participants tended to talk about the people in the photographs or the people who might visit such a place (families, etc.). None of the

participants cited the presence of a roof as a criterion although the presence of a roof is the only criterion used in the law.

Outcome Expectations: Smoking in Public Has Numerous Benefits and Few Costs

Smoking was associated with numerous benefits, such as reducing stress (*stres*) or boredom (*kejenuhan*), pacifying addiction (*kecanduan*), and providing inspiration (*inspirasi*). Smoking after a meal was described as a "must;" as one male smoker said, "if after a meal I don't smoke, I feel uncomfortable." Both male and female smokers described how smoking eases conversation with their friends, and young men described how smoking makes it easier for them to talk with young women.

Public smoking rarely carries costs from other members of the public, venue managers, or law enforcement. Smokers explained that when nonsmokers express displeasure with smoking, the smoker can usually ignore them or move to a different part of the space without having to put out the cigarette. Because the city rarely fines venues, venue managers rarely confront smokers. Some of the venue managers we interviewed were amenable to the smoke-free law, but only if it is enforced uniformly:

> Actually, we are supportive of this regulation... but the thing is that they have to be serious. If one restaurant is asked to be smoke-free, then all of the restaurants have to be smoke-free also. Don't be like, you asked this restaurant to be smoke-free, but the other restaurants no, because... it will influence our income.

Managers also said it was hard to enforce the law because many of their customers are from Jakarta and other areas outside Bogor and are unaware of the law.

Health and legal officials interviewed acknowledged the sparse enforcement and

explained their bureaucratic limitation: The smoke-free law, as a local regulation, requires a judge to issue fines. Therefore the only time smokers are fined is during occasional (7-12 per year) heavily-staffed inspection operations, resulting in 20-30 fines per event. Residents described these events as "raids" (*razia*) and smokers who had seen one said they are now more careful where they smoke. Venue managers can also be fined, but only after 3 warning letters, and as of July 2012, no venue had been fined.

Group Identity: Smoking as a Way to Affiliate with Other Smokers

Smokers discussed how they smoke with other smokers, and implied smoking is a part of Indonesian manhood. A few men alluded to how men who do not smoke are sometimes made fun of as transvestites (*banci*). One explained the social pressure in his smoking initiation, "At first, I just followed my friends. If I didn't smoke, I felt less than a man." Another said that it would be especially difficult for men to comply with the smoke-free law because "most men are smokers so the encouragement to smoke is strong." In the groups of nonsmoking women, there were also some comments about smoking and masculinity, such as talk about how advertising gives the impression that "when men smoke, they are more manly." In the focus group of men who do not smoke, participants explained that they did not see smoking as a necessary part of being a man. As one said: "In my opinion, whether a man is a real gentleman or not real gentleman or not is not defined by whether he is smoking or not. Even, in my opinion, a man is more a gentleman if he applies a healthy lifestyle." Women who smoked expressed a social benefit of smoking with their friends.

Participants' and Advocates' Suggestions for Improving Implementation

Most participants called for strict enforcement along with better public education/communication (*sosialisasi*) to improve implementation of the law. Some residents suggested that the law would be more fair and effective if there were indoor designated smoking areas. NGO and health leaders also asked for more enforcement, but said what mattered most was getting more commitment from the city government to take the law seriously, including rigorous enforcement in government offices.

DISCUSSION

This is the first study to use the TNSB to analyze the norms around a smoke-free law. The TNSB suggests that compliance behavior could be improved by directly changing the descriptive norm or by leveraging the moderating constructs of injunctive norms, outcome expectations, and/or group identity. The TNSB suggests that the moderators may also interact with each other and/or act as mediators between descriptive norms and behavior.[36] Here, based on our findings relating to each construct, we make the following theory-grounded recommendations for improving compliance in Bogor:

1. Address Signs of Smoking as a Source of Descriptive Norms

Smokers said they often smoke where other people smoke, suggesting a direct effect of descriptive norms on behavior. As public smoking is a visible behavior, it may be difficult to change people's perceptions of public smoking without changing the actual frequency of public smoking. However, one approach that may be useful is to remove the evidence that smoking is happening by removing ashtrays and sweeping up cigarette butts. Eliminating ashtrays from regulated venues is a smoke-free best practice.[37] The smoke-free law should be strictly enforced among city employees to set a better example

and thereby reduce the visibility of smoking and non-compliant role models. Additionally, research concerning whether smokers over-estimate the frequency of smoke-free violations (as they seem to over-estimate smoking prevalence) could inform a public education campaign to correct these misperceptions. This strategy has been used with mixed success in the US to correct college student misperceptions about peer alcohol use, resulting in reduced drinking behavior.[38]

2. Promote the Injunctive Norm of Following the Law

Generally, public smoking among men was said to be acceptable. Smoking is only considered inappropriate around children and pregnant women and in air-conditioned venues. The majority of Bogor's restaurants and other public venues are not air-conditioned, but instead are cooled by large open windows. In describing which photographed settings are acceptable for smoking, participants focused on the people in the setting and the air flow. They did not use or know of the roof as the legal criterion. To change the current injunctive norm, communications could explain more clearly where the law prohibits smoking. Messaging could also work to stretch the already accepted nonsmoking scenarios, for example stating that exposing adults to toxic smoke is no more appropriate than exposing children to it. Injunctive norm messaging could be located in the places where people are likely to smoke, such as by putting table-top signs in restaurants. This approach is in line with research findings that increasing the salience of positive injunctive norms at the time of action increases the likelihood of the desired behavior.[16] Research also suggests that messaging about injunctive norms may be more likely to encourage desired behavior than messages about descriptive norms.[39] Per best practices,[37] campaigns could also encourage the public to politely confront violators to

increase the normalcy of these actions. Research can be conducted to learn what local sayings and metaphors may be useful in communicating the harm of secondhand smoke.

3. Change Outcome Expectations to Include Social and Legal Punishment

Currently a male smoker expects a positive mood and social benefits from smoking, with no negative repercussions. Three levels of possible punishment—from the public, venue managers, and the law—are relevant and could be strengthened in Bogor. As noted, communications to the public should encourage social enforcement. Additionally, venues that allow indoor smoking should be rapidly issued warning letters and fined. This would provide a clear message to venue managers that they are responsible for enforcing the law on their properties. This is in line with best practices, which state that fining venues is more important than fining individual smokers.[8] The warnings and fines should be applied fairly across similar venues. Third, increasing the frequency and breadth of enforcement operations would make the threat of a fine more real. In Bogor, there are roughly 250,000 smokers, many of whom violate the smoke-free law daily, yet the current system fines only a few dozen smokers each month.[40] The combination of public social enforcement, manager-driven enforcement, and legal enforcement could have a powerful effect in changing individuals' outcome expectations.

4. Understand and Possibly Reframe the Relationship between Smoking and Masculinity

Individuals in community-oriented cultures such as Indonesia's may be especially affected by group identity.[41] Male public smoking facilitates inclusion among groups of friends who smoke, and may also be done to assert masculinity, emphasizing one's inclusion in the societal group of Indonesian men who smoke. Anthropological and

advertising-analysis research in Indonesia confirms the relationship between smoking and masculinity.[42-44] The role of smoking in masculinity, while mentioned, was not widely discussed in the focus groups, perhaps because it is obvious to the participants. Further research could explore how decisions about public smoking behavior are related to asserting masculinity and to feel part of the group of Indonesian male smokers. Potentially the conceptual image of the ideal Indonesian man can be changed. A similar effort was well received in pilot research in another part of Indonesia when researchers rhetorically asked men whether their responsibility to women and children was a greater cultural value than their personal smoking pleasure.[45] Likewise, research could assess whether women who smoke in public do so to maintain affiliation not just with their smoking friends, but also with all female smokers.

Limitations

Whether our findings about social norms in Bogor are transferable to other parts of Indonesia is uncertain, and similar studies could explore regional differences. However, our findings about the role of smoking in society are congruent with research in other Indonesian cities.[42,46] Second, the use of translated data may have caused nuances of language and culture to be missed or misinterpreted. To minimize this, MJB communicated regularly with the facilitators and translators during the analysis phase about unclear phrasings and cultural references. Finally, to date research on the relatively-new TNSB (2005) has been descriptive and predictive, and has not shown the effectiveness of the TNSB as a planning tool for changing behavior, although work in this direction continues.[47]

Conclusion

The TNSB provides a framework for examining current norms around a smoke-free law and determining ways to increase compliance. This approach may be especially valuable in the variety of cultures across LMIC. As the example of Bogor illustrates, the TNSB has potential for developing theory-based communications strategies and informing implementation to accelerate the movement toward sustained, self-enforcing smoke-free norms.

Supplemental Material 1: Focus Group Facilitation Guide

Below are the questions used for the focus groups of Bogor residents. The order of the questions has been changed to group them by category. Questions not relevant to this project have been omitted.

Awareness of law:

- Are there any laws that restrict smoking in Bogor?
    - Probe: What do these laws state?
- [Show photographs again] In which of these venues do you think the law bans smoking?
- Have you seen signs that ban smoking?
    - Probe: Where have you seen them?
    - Probe: What do they say?
- [If the group is unaware of the law, tell them that there is a new law that bans smoking in most public places including restaurants, public transportation, and workplaces.]
- Who made this law?
    - Probe: Why do you think they made it?

Opinion about law:

- How do you feel about this law?
    - Probe: Is it a reasonable law to have?
    - Probe: Have your opinions changed over time?
- What have you heard from other people about how they feel about this law?
    - Probe: Do other people seem to think it is a reasonable law?
    - Probe: Do you think peoples' opinions have changed over time?
- How do you feel about the way this law has been put into action (implemented)?
    - Probe: Does it feel like the law is being fairly applied?

Descriptive norms:

- What kinds of places do people smoke in Bogor?
- What time of day do people smoke?
- Is smoking common in Bogor?
    - Probe: Why do you think this is the case?
- Do people smoke around other people?
    - Probe: Do people say anything if they want to smoke around another person?
- Do you think a smoke-free law can work in Bogor?
    - Probe: Why or why not?
- Do you think this law will become more broadly accepted in the future?
    - Probe: Why or why not?

Injunctive norms:

- What do you think your friends would think about when deciding to smoke in public or not?
- If a person smokes in public, is that considered acceptable?
- I am going to show you some photos of different venues. For each one let me know if you think smoking should be allowed in this venue or banned. Why? [Focus group facilitator shows photos]
- Have you asked anyone to stop smoking around you because of this law?

Outcome expectations:

- Do people follow this law?
    - Probe: Have you seen anyone telling people not to smoke because of this law?
    - Probe: Have you seen anyone get a fine because of this law?

Group identity:

- How do you think this law affects people's social interactions?
- Do you think men have more difficulty complying with the smoke-free law than women?
    - Probe: If so, why?

Recommendations:

- What things could be done to make this law or its implementation better?

Supplemental Material 2: Photo Elicitation Images

Below are the five images used as example venues for the focus group discussions.

Photo 1

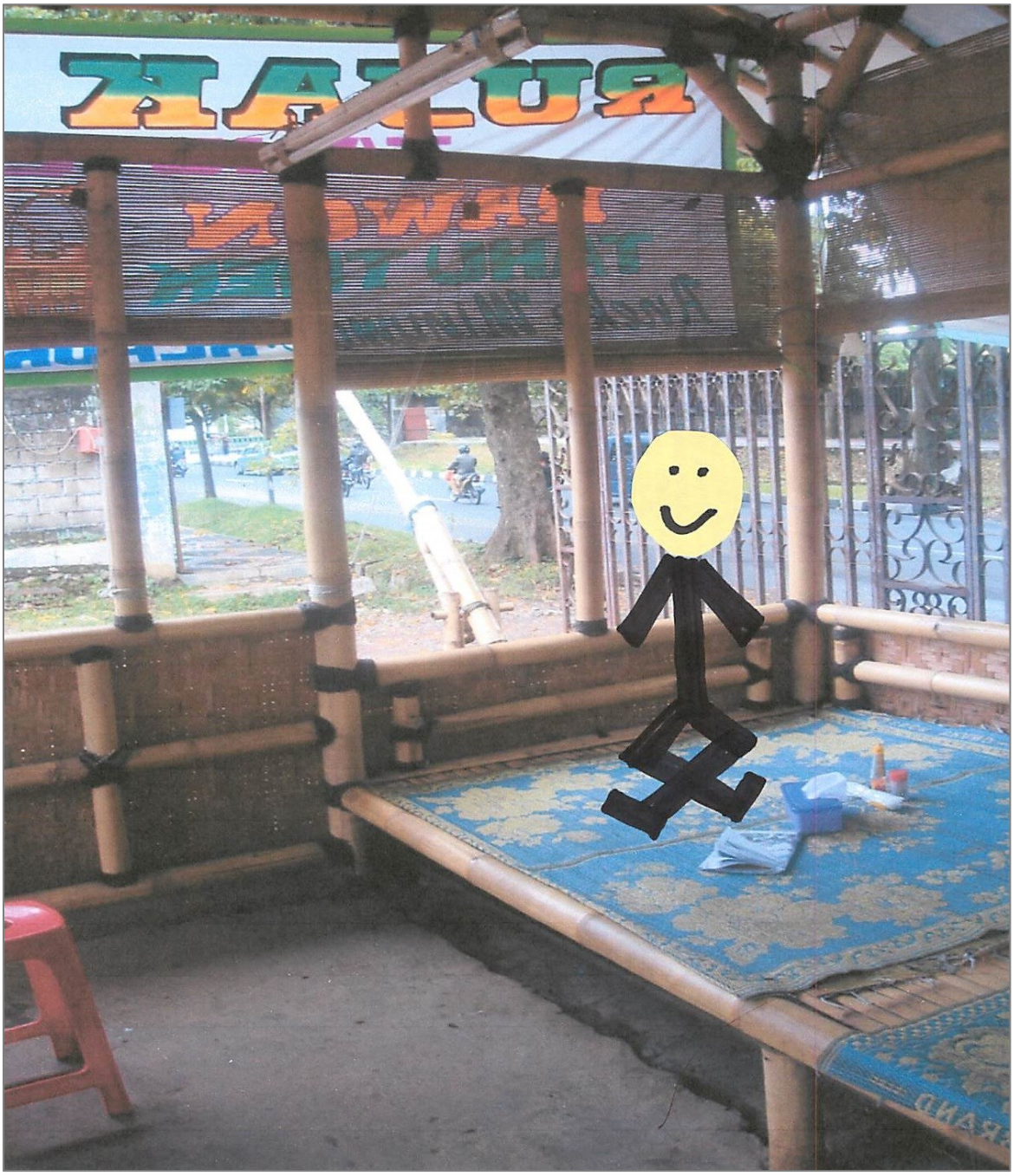

Photo 2

Photo 3

Photo 4

Photo 5

Note that in Photo 5 there is no roof where the person is, so it is legal for the stick-figure person to smoke.

Opinion - Participants saying it is acceptable to smoke here

		Male smokers		Female smokers		Male nonsmokers		Female nonsmokers		All	
Setting of photograph	Actual legal status	n (of 39)	%	n (of 8)	%	n (of 7)	%	n (of 33)	%	n (of 87)	%
1. Air conditioned restaurant	Smoke-free	2	5%	0	0%	0	0%	0	0%	2	2%
2. Traditional open-wall restaurant	Smoke-free	37	95%	7	88%	7	100%	17	53%	68	78%
3. Modern coffeeshop patio	Smoke-free	32	82%	0	0%	3	43%	18	56%	53	61%
4. Street vendor bench under tarp	Smoke-free	36	92%	5	63%	4	57%	15	47%	60	69%
5. Outdoor picnic table near other people	(Smoking allowed)	34	87%	4	50%	1	14%	21	66%	60	69%

Law - Participants saying they believe it legal to smoke here

		Male smokers		Female smokers		Male nonsmokers		Female nonsmokers		All	
Setting of photograph	Actual legal status	n (of 39)	%	n (of 8)	%	n (of 7)	%	n (of 33)	%	n (of 87)	%
1. Air conditioned restaurant	Smoke-free	1	3%	2	25%	0	0%	2	6%	5	6%
2. Traditional open-wall restaurant	Smoke-free	33	85%	7	88%	7	100%	10	30%	57	66%
3. Modern coffeeshop patio	Smoke-free	19	49%	4	50%	2	29%	15	45%	40	46%
4. Street vendor bench under tarp	Smoke-free	33	85%	0	0%	2	29%	8	24%	43	49%
5. Outdoor picnic table near other people	(Smoking allowed)	28	72%	0	0%	2	29%	13	39%	43	49%

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CHAPTER 5.

THE INFLUENCE OF RELIGIOUS ORGANIZATIONS' STATEMENTS ON COMPLIANCE WITH A SMOKE-FREE LAW IN BOGOR, INDONESIA

INTRODUCTION

In the last 20 years Muslim leaders and organizations worldwide have become more outspoken against tobacco use.[1,2] Their *fatwas* (religious rulings or opinions) forbidding smoking combined with other tobacco control efforts may help reduce smoking prevalence and reinforce emerging secular smoke-free laws.[2-5] A number of studies have shown associations between religiosity and reduced smoking prevalence[6] and potential benefit of religion-based tobacco control interventions.[7-9] In Malaysia, a majority Muslim country where social norms are pro-smoking and tobacco control is weak, religious norms have been shown to play a greater role than secular norms in influencing quit attempts smoking.[10] These findings are consistent with social norms research showing that people are most likely to be influenced by groups with which they closely identify.[11] According to reference group theory, the degree to which a group serves as an influential reference point for an individual is a function of five factors: similarity in status to the group, sharing the values and beliefs of the group, having clarity about the group's values and beliefs, having sustained interaction with the group, and whether an individual defines other group members as significant.[12-14] This theory is readily applicable to understanding group influences on smoking behavior.[14] Smokers who identify with a particular religion may look to their religion as their reference group rather than society at large, making religious leaders potentially powerful figures in the

success of smoke-free laws. The World Health Organization (WHO) encourages working with religious leaders in tobacco control efforts.[15] However, most investigations regarding smoking and religion have focused on Christianity in high-income countries.[6] The current study explored religion and smoking in the predominantly Muslim (87%) country of Indonesia.[16]

Islam has a strong legal tradition that works to minimize harm to society and individuals.[2] All human affairs are classified as *fard* (mandatory), *mustahabb* (encouraged), *mubah* (neutral), *makruh* (discouraged, not sinful but those abstaining from it will be blessed by God), or *haram* (prohibited). In January of 2009, Majelis Ulama Indonesia (MUI) the government-funded council in Jakarta which includes representation from many Indonesian Muslim organizations, issued a fatwa classifying smoking in public and smoking by children or pregnant women as haram.[17] Otherwise smoking was said to be makruh. Nahdlatul Ulama (NU), the largest socio-religious Muslim organization in Indonesia, disagreed with the fatwa, saying that "the danger of smoking is relative, not as significant as the danger of drinking [alcohol]. Also, those who smoke have relative benefit, for example, their thinking is clear when smoking."[18] In March 2010, Muhammadiyah, the second largest Indonesian socio-religious Muslim organization, declared all smoking haram for its followers, citing the Quran's prohibition on suicide,[19] "make not your own hands contribute to your own destruction" (2;195).[2] Other Muslim scholars have additionally cited the Quran's statements against causing willful harm or annoyance to others.[1,2]

Amidst these religious discussions, Indonesia is a country struggling with a large and increasing tobacco problem. With 61.4 million smokers, Indonesia is third only to

China and India in number of smokers.[20] Between 1995 and 2011, smoking rates rose from 54% to 67% among men and from 1.7% to 4.5% among women.[20] Additionally, the clove cigarettes (*kreteks*) that comprise most of Indonesian tobacco consumption (92%) may be more toxic than tobacco-only cigarettes.[21] Smoking in public places in Indonesia is common: 51% of adults are exposed to tobacco smoke in the workplace, and 85% of restaurant-goers are exposed to smoke in restaurants.[20] There is limited public awareness of the risks of secondhand smoke, especially among smokers, older adults, and less educated populations.[20]

At the national level, Indonesia has minimal tobacco control measures and is one of the few countries that have not signed the WHO Framework Convention on Tobacco Control. However, some progress is being made in Indonesia's cities. Bogor, a city of 1 million people was the first Indonesian city to pass a comprehensive smoke-free law. Bogor is in a province that is 97% Muslim,[16] and has some NU presence, but less Muhammadiyah presence (~1,500 members). In the 2009 law, which took effect in May 2010, smoking was banned in all hotels, restaurants, public markets, malls, places of worship, workplaces, playgrounds, schools, health facilities, and public transportation vehicles. The city does not allow indoor designated smoking areas or exemptions. An evaluation in early 2011 found that overall 87% of venues were smoke-free but there was still smoking in 84% of traditional markets, 43% of restaurants, 29% of government buildings, and 11% of places of worship.[22]

To our knowledge, there have been no studies to determine how religious anti-smoking pronouncements influence the public's perspectives about smoke-free laws. If the messages are influential, the tobacco control community may benefit from a

partnership with religious organizations. This manuscript explores these issues through the following research questions: (1) what is the role of smoking in Indonesian religion and society?; (2) what do Bogor's residents think about the religious status of smoking and smoking in public?; and (3) how do the fatwas affect compliance with the smoke-free law in Bogor?

Box 1: Positions of Major Muslim Bodies in Indonesia

Name	Type	Members	Decree on smoking (year)
Majelis Ulama Indonesia (MUI)	Muslim leadership body		Smoking by children and pregnant women and smoking in public is haram (forbidden); other smoking is makruh (discouraged).(2009)
Muhammadiyah	Muslim organization	30 million[23]	All smoking is haram for its followers.(2010)
Nahdlatul Ulama (NU)	Muslim organization	40 million[23]	All smoking is makruh.(2009)

METHODS

In July 2012 we conducted semi-structured focus groups with residents of Bogor to address the three research questions. Participants were recruited from a shopping mall frequented by middle-class Bogor residents and an outdoor market where lower-income Bogor residents shop. To encourage participants to speak freely, we stratified the focus groups by age, gender, and smoking status (Table 1). Five local researchers were trained in recruitment and focus group facilitation. The focus groups were held in rented rooms within public venues and were conducted in Bahasa Indonesia, the national language. Facilitators followed a focus group guide structured around the research questions. We also used photo elicitation techniques,[24] having participants comment on the

appropriateness and legality of smoking in public places depicted in 5 photographs. We provided participants with snacks and compensation (81,000 rupiah, about $8.67) for their time. The facilitators transcribed the focus group recordings. Professional translators then translated the transcripts into English and an additional professional translator checked the translations for thoroughness and accuracy.

Table 1: Focus group participants

Gender and smoking status	Ages	Recruitment Venue	No. Recruited	No. Attended
Male smokers	18-25	Mall	12	10
Male smokers	18-25	Mall	10	9
Male smokers	26+	Mall	12	8
Male smokers	26+	Mall	10	5
Male smokers	18+	Market	10	7
Male nonsmokers	18+	Mall	10	7
Female smokers	18+	Mall	10	8
Female nonsmokers	18-25	Mall	12	10
Female nonsmokers	26+	Mall	9	7
Female nonsmokers	26+	Mall	10	10
Female nonsmokers	18+	Market	10	8
			115	**89**

Data analysis

The transcripts were iteratively coded in ATLAS.ti 7.0 qualitative analysis software (ATLAS.ti GmbH, Berlin) using a thematic content analysis strategy,[25] seeking both recurrent themes and variations in responses to the research questions. MJB developed the codebook and assigned the codes, noting emergent themes within the larger framework of the research questions. MJB had some assistance from Indonesian colleagues in understanding the findings within the context of Indonesian language and culture. With the recurring responses we approached saturation around our primary research questions.[25] The focus group findings were triangulated with data collected from

interviews with venue managers and city leaders that were part of the larger research project.[26] We also searched for negative cases within the data.[27]

RESULTS

In all, 89 participants (46 male and 43 female) ranging in age from 18 to 50 participated in the 11 focus groups. Of these, 87 self-identified as Muslim, including one who identified as being a member of the socio-religious group Muhammadiyah. Two participants declined to provide their religion. The average focus group discussion lasted 126 minutes (range: 81 to 160 minutes). We summarize below thematic findings that emerged through analyses of the transcripts.

Role of smoking in Indonesian religion and society

Participants described smoking as a normal part of secular and religious Indonesian life, with smoking and smoke exposure frequent in both public and private spaces. Cigarettes are commonly offered alongside traditional snacks and beverages in meetings, funerals, weddings, and other religious events. As one male smoker explained:

> If it is in our culture that it is a habit to smoke after eating, drinking coffee and smoking, drinking tea and smoking, and reading Quran and smoking—I don't know for the smoking when it is stated as haram by MUI or maybe KTR perda [the local smoke-free law]—but if from the surrounding people they have this negative culture, to stop smoking is difficult.

The focus groups revealed that smoking is normative for Indonesian men. Smoking is often portrayed as a part of manhood, and men who do not smoke risk being mocked as *banci* (transvestites). However, the male nonsmokers reframed smoking as contrary to the masculine ideal: "a gentleman is healthy and responsible to his family. He is not a gentleman if he coughs all the time." The social norm for women is not to smoke, as

women who smoked described feeling ashamed to be seen doing so in public. They saw themselves as not being pious: "since we wear *hijab* [Muslim headscarf] it's embarrassing to not behave accordingly." To avoid this stigma, some women refrained from smoking in public entirely, while others said they would only smoke in public if they were with other smoking women. A focus group facilitator later explained to us that there is a common "code" that a woman smoking alone is viewed by others as a prostitute soliciting customers.

The smoke-free law had only been partially effective in reducing indoor smoking, as city residents described uncertainty about where the law applied, and said that the law was rarely enforced. Some of the nonsmoking women were frustrated about this lack of enforcement while others took some of the responsibility on themselves: "it is our shared responsibility, not only the government's responsibility."

What Bogor's residents think about the religious status of smoking and smoking in public

Nearly all participants who expressed an opinion about the Islamic status of smoking said that smoking is makruh (discouraged); a few others said it was haram (forbidden). Participants explained how the message they received regarding smoking could depend on the type of *ustad* (Islamic preacher):

> Among conventional ustad, it is difficult. They will ask to which verse we refer. They are very fluent in Quran verses. The modern ustad, even though it is not stated explicitly in the verse, they think that if we do something that does not benefit us, it is haram.

Participants considered Muslim leaders' positions along with their own interpretations. Notably, no smoker said they believe smoking is always haram. One woman, a smoker, explained, "...there was a religious leader who said smoking was haram. But, I think it is

more makruh," while others spoke about the status of smoking as a fact, e.g., "smoking is not haram, it is makruh," perhaps indicating differences in how subjective they consider Muslim law. One male smoker had a more nuanced perspective, one which fit well with MUI's fatwa and Bogor's smoke-free law: "now, actually smoking is not haram, it is makruh. Only haram when it is in public places because the smoke, the smell, and flavor may cause people who do not smoke to experience difficulty in breathing and coughing." Another said that smoking is acceptable in moderation in Islam, but that if a smoker gets sick, they should reduce their smoking: "It is alright but when it is too much it will cause diseases, now.. [quoting Quran:] *'everything that tortures our body, ourselves, is haram'* ..only if it is already too much. After it causes diseases, we have to reduce." Nonsmokers were more amenable to smoking as being haram. Among nonsmokers, some cited their religion as one reason among many for not smoking; as a woman explained:

> The religion said it is not allowed, the law said so too… maybe, excuse me, my family, errr… very obedient... So it is like this, religion said no, law said no, doctor said no. You see… so I really obey them.

One male nonsmoker framed his perspective on smoking in religious terms: "people who smoke are people who have not received *hidayah* [Islamic term meaning enlightenment]."

Participants commonly expressed that it was not credible for Muslim leaders to talk negatively about smoking, as many of these leaders themselves smoke. When we asked one focus group if they had heard religious leaders forbidding smoking, a woman said, "No, because ustad [Islamic preacher] is identical to cigarette," which prompted laughter from the other participants. In another group, a participant said "even though he is the leader, he can only talk, but cannot implement it for himself." Additionally,

participants talked about seeing Muslim school leaders and Muslims who had been to Mecca (and were thus seen as Muslim exemplars) who smoked, and noted that smoke-free signage at mosques is often ignored.

How the fatwas affect compliance with the smoke-free law in Bogor

When we asked participants whether they perceived that the religious leaders' statements influenced other people, common responses included "it is an individual matter" or "depends on the individual, personally." One male smoker explained that his first reaction to hearing about the smoke-free law was, "What is this, prohibiting this and that? At that time, my thought was 'your religion is for you, my religion is for me.'" although he later came to see the law as "fair" (*adil*). However, some people felt that the local Muslim leaders could have some influence:

> But in my opinion when ustad said 'A' [i.e., something], he is more probably to be heard than the Mayor's local regulation. Even the President's rule is not as strong as the ustad saying. The problem is that very rarely ustad says that smoking is haram. 1,000 to 1, very rare because there is no explicit verse that forbids smoking, that's what they say.

Regarding the smoke-free law, one of the smokers said, "I would like to add that in addition to NGOs, the health office, this should be supported by religious leaders. There is an impact." While most smokers said they were unaffected by religious pronouncements, others said these messages are important and useful.

Some of the smokers we talked with explained that they try not to bother people with their smoke. Nonsmokers, and even a few smokers, told of how they had admonished people for smoking around children or pregnant women. One nonsmoker explained his perspective on seeing someone smoke around others: "I thought in my mind, this person is *dzalim* [Islamic term meaning evil because they hurt people on

purpose]. There are women, children, but they smoke as they like. That is dzalim. That is a big sin."

DISCUSSION

This is the first study to investigate the effect of religious organizations' pronouncements about smoking on the public's perspective on a smoke-free law. The Indonesian fatwas and the implementation of Bogor's smoke-free law occurred within the context of a largely pro-smoking social landscape in which two-thirds of men smoke. Our finding that smoking was normative for men, but not women is common for Islamic[2] and Southeast Asian[28] countries. We found that the social and religious norms were generally unaffected by the smoke-free law, partially because enforcement was lax. However there was a general desire to be respectful of others, and people were willing to ask smokers not to smoke around pregnant women or children.

When we asked participants about their understanding of the Muslim position on smoking, most said it was makruh, a few said it was haram, and others were uncertain. The MUI's fatwa against public smoking carried less weight than we would have expected. Reference group theory provides some insight into why the fatwas are not exerting more influence. Individual Muslims in Bogor show status similarity, likely have similar values, and have sustained interaction with the Muslim community, but there were mixed findings as to how significant individuals deem Muslim leaders' pronouncements. On matters of smoking, people saw leaders who smoked as not credible. Additionally, individuals have been given differing messages about the acceptability of smoking from various local and national religious leaders. This lack of

clarity is also predicted to reduce the groups' influence on individuals. Reference group theory suggests that the MUI's influence could be increased by addressing the smoking leaders' lack of credibility on smoking and working toward a more uniform Muslim message on smoking. Tobacco control advocates can make the case that things that are makruh truly should be discouraged rather than accepted as normal. Although the traditionalist ustads may not agree that all smoking is haram, they would at least agree that it is makruh, and perhaps would support an indoor smoking ban on the grounds of not harming or annoying other people. It may be that an ustad who is explicit that they smoke but will now do so only outdoors could have credibility. Local ustads may have more influence than national organizations. Another reason the message of smoking being haram is not more widely accepted may be cognitive, as smokers may be discounting messages that cause dissonance with their behavior.[14]

The refrain of "it depends on the individual" as to whether to follow religious leaders was somewhat unexpected as Indonesian culture is collectivist and Islamic culture is both collectivist and proscriptive. On the other hand, it fits with the view among scholars that Islam in Indonesia is especially moderate and tolerant.[29] Muslims in Bogor vary in their religious observances (e.g., daily prayer, wearing of hijabs) and are tolerant of these differences in practice. However, the local Muslim leaders do appear to have some influence and to have had some impact on smoking perceptions and behaviors. The fatwas have supported nonsmokers in their nonsmoking behavior and desire for smoke-free air and at least some smokers said that fatwas influence their decisions on smoking. These findings are similar to research among Malaysian Muslims, of whom 30% agreed that anti-smoking messages from their religious leaders would motivate them "a lot" to

quit smoking.[14] Smokers in our focus groups were reflective on the appropriate places and settings for smoking and did not want to disturb the people around them. Religious and city leaders could build on the smokers' desire to be respectful along with the nonsmokers' willingness to socially enforce the law. Efforts to increase social enforcement of the law may make up for the city's sparse legal enforcement. As noted earlier, research in neighboring Malaysia suggests that where secular norms are not strongly against tobacco, a religious norm restricting tobacco use can be powerful.[10] In Bogor, public health officials could talk more with local Muslim leaders about their possible support for the smoke-free law. Religious leaders can explain to their members that the MUI fatwa and the city law do not forbid all smoking, but they do forbid it in indoor public places. Both for religious and legal reasons, ustads should strictly enforce the smoke-free law on mosque grounds, and doing so could improve their credibility when speaking about smoking.

Limitations

The focus group participants and venue managers were recruited using a convenience sample, and therefore transferability of the findings may be limited. In However, we did stratify the groups to gather a diversity of perspectives, and we approached saturation in participant responses from male smokers, but we could have benefitted from more focus groups with female smokers. A measure of religiosity could have told us more about our sample population. Second, we did not talk with local ustads. Such conversations would have been helpful to our achieving a more thorough understanding of how and why the MUI fatwa has not had more of an impact, and how local and national Muslim leaders interact. Third, the data analysis was conducted using

translated data, and nuances of language and culture may have been missed. To partially address this, MJB communicated regularly with the facilitators and translators during the analysis phase about unclear phrasings and cultural references.

Future work

Our research indicates that the effects of the Indonesian fatwas alone are limited. Similarly, in Egypt simply being aware of a fatwa against smoking did not affect smoking behavior.[3] The public health community may need to focus on talking with the local religious leaders, who may be more influential, seeing if they are willing to vocally support smoke-free laws. Both public health and religious leaders have the shared goal of bettering the well-being of their constituencies.[15] Surveys could be conducted to measure people's awareness of the positions of their religious leaders and their interest in hearing local religious leaders speak more on the issue of tobacco use. Also, where it is culturally acceptable, it may be worthwhile to conduct pilot testing of health messages which cite religious justifications. Additionally, as most smokers are men, gender-tailored messaging could be explored. Messages could be tested promoting good Muslim men as those who are responsible and do not smoke near others, and encouraging all parents to protect their children from smoke. [30]

Conclusion

The MUI and Muhammadiyah fatwas about smoking have had limited impact in Bogor, and appeared to function mostly in reaffirming nonsmokers in their not smoking. However, participants did say they would like their religious leaders to talk more about the smoke-free law. These findings can be used to stimulate further research on how the tobacco control officials can work with religious communities on shared goals. In

countries where there are limited resources for smoke-free law education and enforcement, religion-backed and socially enforced smoke-free norms may be a valuable supplement.

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CHAPTER 6.

DISCUSSION

This project provides new findings about Indonesia, a country where 100 million people are exposed to secondhand smoke[1,2] and yet there was previously almost no published research about smoke-free policies. The fieldwork-based qualitative investigation produces a deeper understanding of the complex role of smoking in Indonesian society and how implementation of the country's first city-wide smoke-free law is proceeding. The systematic-review-informed research agenda compiles lessons from efforts across countries worldwide to identify what we know and what we need to know about implementing smoke-free laws for the 6 billion people currently not protected by comprehensive smoke-free policies.[3] Each of the manuscripts has its own role, yet is also part of the larger, interwoven narrative of how new smoke-free laws are put into practice in low- and middle-income countries (LMIC). This chapter begins with a review of the central findings, then presents points of synthesis among the manuscripts, and concludes with discussion of new research questions stimulated by this dissertation project.

CENTRAL FINDINGS

In the first manuscript I reviewed the state-of-the-science in implementation of smoke-free laws in LMIC, and from this basis proposed urgent topics for future research. As the review reveals, findings about the health benefits and economic outcomes of smoke-free laws appear to be as applicable in LMIC as in high-income countries (HIC).

As more LMIC and HIC alike have passed smoke-free laws, tobacco control advocates have assembled and shared their success stories and lessons learned.[4-6] A few studies have focused specifically on the current roadblocks to improving implementation and achieving compliance with these new laws.[7,8] In the research agenda, I proposed 4 areas on which to focus future research, including developing a descriptive and instructive theoretical model of smoke-free law implementation and learning how to work most efficiently with limited resources.

The next two manuscripts, drawing from the qualitative fieldwork during my 4 months in Bogor, addressed elements of these two research areas. In Chapter 4, I demonstrated the use of the theory of normative social behavior (TNSB) for understanding and making recommendations about how to shift social norms in Bogor to align with the smoke-free law. The chapter provides a starting point for smoke-free theory development. TNSB is one of the most developed theories focused on social norms. When applied to the current social norms about public smoking in Bogor, the TNSB suggests four points of leverage to increase smokers' compliance with the smoke-free law. One is to learn about and work to change smokers' perception of the descriptive norms around public smoking. Another is to promote the injunctive norm of a moral and legal obligation to follow the smoke-free policy and be respectful of other Indonesians. A third is to increase the threat of social and legal punishment to change the current balance of positive and negative outcome expectations about smoking in public. The fourth is to reframe the role of public smoking as contrary to the group identity of Indonesian masculinity. Considering how the self-enforcement that binds a successful smoke-free law together depends on social norms, the TNSB provides an illustrative and constructive

starting point from which to build a theory of implementation of smoke-free norms, as requested in the research agenda.

The third manuscript focuses on the religious component of social norms, by exploring the effect of recent Muslim fatwas on public smoking. Incorporating public health messages with relevant religious teaching could prove a low-cost way for countries with limited resources to inform the public about smoke-free laws and improve their compliance with them. My findings are that *kretek* (clove-cigarette) smoking is described by residents as an integral part of Indonesian social and religious life. Focus group participants said that smoking is generally considered *makruh* (discouraged) by their religion but is the norm among men, including religious leaders. Participants said it is up to individuals to make their own decisions, and thus fatwas without clear justification and support from local religious leaders may have little influence. However, smokers and nonsmokers alike said that there is a value in Muslim leaders talking about the smoke-free law and helping promote it. In interviews, the Bogor City Health Department and the local NGO No Tobacco Community explained that they have talked with religious leaders in Bogor, asking them to encourage support for the smoke-free law. To date, these discussions do not seem to have affected public behavior, as *ustads* (religious preachers) continue to smoke themselves, and traditionalist ustads do not want to speak against tobacco because it is not explicitly discussed in the Quran. These findings indicate that while inexpensive, national fatwas do not seem to directly affect behavior on the ground, and if there is a place for collaboration with religious leaders, it is likely in local collaborations and communications efforts.

THE RELIGIOUS COMPONENT OF INDONESIAN SOCIAL NORMS

The role of Islam in influencing compliance or noncompliance with the smoke-free law in Bogor can be viewed as one aspect of Indonesian social norms. In Indonesia, Islam is the most prevalent religion (87%)[9] and it plays a significant role in many matters of daily life, including affecting social norms, behaviors, and customs. Islam was brought to what is now Indonesia by Arab traders in the early 13th century, and in the 14th and 15th centuries spread throughout the islands, displacing the Hindu-Buddhist tradition.[10] Islam grew to become the predominant religion across 89 of Indonesia's 94 provinces, the exceptions being four provinces that are majority Christian, and Bali, which is majority Hindu.[11] Islam plays a limited role in national politics, with religion-based parties receiving 32% of the vote in 2014 parliamentary elections.[12] Historically, the central government has worked to maintain a balance between respecting the popularity of Islam while limiting the influence of religious parties and leaders.[12]

Role of Islam in Indonesian life

Indonesia is not an Islamic state, but rather a pluralistic country recognizing six religions (Islam, Protestantism, Catholicism, Hinduism, Buddhism, and Confucianism) among which residents can choose. The vast majority of Muslims in Indonesia are moderate and tolerant, although there are some more extremist fundamentalist factions such as the Front Pembela Islam (Islamic Defenders Front). The various religious groups are organized under the government-funded Majelis Ulama Indonesia (MUI), which was formed in 1975 as a body to advise Muslims.[10] The largest socio-religious groups, the modernist group Muhammadiyah and traditionalist group Nahdlatul Ulama (NU) are generally moderate and have agreed to work together to combat extremism.[10] In addition

to playing social, and some limited political roles, Muhammadiyah and NU each operate thousands of schools and dozens of universities and hospitals across the country.

The role of Islam in everyday life in Indonesia is readily visible. The faith affects the norms of daily dress, daily activities, and business. The *adzan*, or calls to prayer can be heard via loudspeaker throughout the cities five times daily. City offices and larger public spaces such as malls generally have *mushollas*, spaces designated for Muslim prayer. Alcohol, proscribed in the Quran, is rare in Indonesian society and sales have been banned in some areas.[13] During Ramadan, when Muslims fast during daylight hours, many restaurants are closed during the day, and city nightlife is also reduced. Some Indonesian women—in Bogor it appeared to be about half—wear the *hijab*, the traditional Muslim headscarf, as a sign of their religious observance. In our focus groups, women said that smoking in public while wearing a hijab would be shameful and make them appear not pious.

Tobacco use among Muslim leaders and their followers

Currently, the norms about public smoking in Indonesia are reinforced by the behavior of local Muslim leaders, in ways that perpetuate gender differences. Participants said that it is common for ustads to smoke, that smoke-free signage in mosques and mushollas is often ignored, and that religious gatherings among men often involve smoking. In a focus group statement that did not make it into the religion manuscript, one woman explained that she had become frustrated with the public health community leaning on the women to get men to follow the smoke-free law in religious settings rather than confronting men directly:

> ...it is difficult. The men usually read holy Quran in the evening. If the women come there, it is as though they are entering the jungle, it is so difficult. To tell you the truth the people from the

> Health Office said they have not touched areas like men's Holy Quran reading groups, just with women. Now the women, as the cadres [community health volunteers] for the men, are asked to criticize. I am afraid, ma'am, that the men will reduce their monthly shopping money if they do that.

The public health officials and NGO leaders whom I talked with said that religious venues are among the most difficult for achieving compliance with the smoke-free law. They said they had conducted outreach to religious leaders, but from the findings in the focus groups, this seems to have had little impact to date.

Implications for implementation of smoke-free laws in Indonesia

Applying the TNSB to the situation of religious leaders in Bogor suggests a number of ways that the leaders, if they so chose, could promote public behavior that complies with the smoke-free law. First, there is the issue of the current descriptive norm. Male smokers see other Muslim men, including Muslim leaders, smoking in public, thus encouraging the perception that the typical Muslim reaction to the smoke-free law is to ignore it. If ustads instead followed the smoke-free law and enforced it in their activities, their role modelling might change this descriptive norm. As another approach, the injunctive norm is a natural place for religious involvement, as the injunctive norm can involve a moral obligation regarding what one is supposed to do in a situation. It may be powerful if local Muslim leaders discuss the smoke-free law and emphasize the moral duty for Muslims to follow it, as their faith requires them not to do harm to the people around them ("there shall be no infliction of harm on oneself or others."[14]). The Bogor City government could reinforce this injunctive norm with communications supporting the smoke-free law that cite supportive passages of the Quran. Outcome expectations may also be amenable to the influence of Muslim leaders, if these leaders emphasize the

shamefulness of public smoking, creating an expectation of embarrassment by men if they choose to smoke in public. This is the circumstance that female smokers already face: they avoid public smoking because it is discouraged by their religion and they do not want to be judged negatively. Finally, the group identity of Indonesian manhood may be a point of influence, if Muslim leaders reinforce the message that a Muslim gentleman follows laws and does not harm other people. This would be in line with the way some nonsmokers currently describe their nonsmoking as appropriate for a gentleman. Thus, combining the fieldwork findings and theory of the research on norms and religion in Bogor can generate concrete actions that public health officials could discuss with religious leaders toward increasing smokers' compliance with the smoke-free law. The key first step will be engaging in more conversations with religious leaders to learn how to win their interest and involvement.

ROLE OF RELIGION AND SOCIAL NORMS IN THE RESEARCH AGENDA

There are three notable intersections between the fieldwork-informed religion and social norms manuscripts and the systematic-review-derived research agenda: the role of culture in implementing a smoke-free policy, the development of a theoretical framework for smoke-free laws, and the role of religious venues as one type of venue regulated in smoke-free laws.

Culturally-tailored implementation

In the original proposal for this project, the aims included learning about how social and cultural context were taken into account when implementing the smoke-free law in Bogor, and how social and cultural context may need to be given a more

prominent role in international best practices. In the fieldwork findings, interviewees and focus group participants described the many ways smoking is imbedded in the culture, that smoking is normal for men but not women, and that local laws (*perda*), such as the smoke-free law, tend to be ignored. Participants also shared things they had frequently heard, such as that one should not smoke in an air-conditioned room, that secondhand smoke is worse for nonsmokers than for smokers, and that some people believe smoking is okay unless it makes you sick at which point you should stop. Notably, in Bogor, city officials did not put emphasis on the cultural aspects of smoking. As one said, "It's not the culture, but behavior. Someone's behavior. Attitude." The health officials were primarily looking to fulfill the requirements of the law and achieve compliance the best they could with limited resources and a cumbersome legal enforcement mechanism. The law was written based on an international template, the enforcement was generally done uniformly across venues, and health communication messages were factual and not tailored to local contexts or populations. The results of this effort was a law that was finding moderate success, success that seemed to hinge on the perseverance of health advocates in the face of limited awareness and interest among the public and some enforcement officials. Thus culture was not given a strong emphasis in the implementation of the smoke-free law in Bogor. Additionally, as described in the manuscript on the role of religion, while I had anticipated that religious culture might positively impact compliance with the smoke-free law, its actual role was limited. Muslim smoke-free fatwas supported the beliefs of nonsmokers but the counterproductive example of smoking of religious leaders was more powerful.

As a result of these findings, while I did include cultural consideration in the social norms manuscript, in the research agenda I did not put heavy emphasis on further investigation into examining how international standards need change to reflect cultural contexts. Current evidence, as shown in the findings from the systematic review, indicates that the best practices across countries may be essentially universal. However, I suggest that cultural differences such as collectivist or individualist orientations may have a role in a theoretical model of smoke-free law implementation.

Development of a theoretical model for smoke-free implementation

In reviewing the literature about smoke-free laws, theory was rarely discussed, and if so, tended to focus on the political process of getting a smoke-free law passed and enacted,[15-17] or the general process of tobacco control.[18] In reports, the CDC[19] and the WHO[20] present logic models for evaluating the different aspects of smoke-free laws, but they do not explain the theory behind the constructs chosen. I found only two articles that describe theory on implementation of smoke-free laws with some detail.

The first is a 1991 paper by Pederson and colleagues that presents a conceptual framework of factors hypothesized to be related to compliance with smoke-free laws, drawn from the academic literature and the authors' 1983 survey in Ontario, Canada (Figure 1) .[21] This framework shows psychological, social, and political constructs the authors predict to be important to achieving compliance with smoke-free laws. Many of these constructs relate to factors that focus group participants and interviewees in Indonesia described as important, such as social norms, knowledge of health effects, provision of smoking areas, and attitudes toward smoking restrictions. Pederson and colleagues note that their framework is speculative, and should be formalized, tested, and

modified based on empirical results. Some of the findings in Indonesia suggest possible shortcomings in the model. The model gives only minor attention to social norms, which are central to the operation of smoke-free laws, and gives no mention to moral influences, such as the role of messages from religious authorities. The model also makes no mention of outcome expectations, such as expectations of social or legal sanctions for smoking, which were some of the most prominent themes in the focus groups. Also, the model's tendency toward many bidirectional hypothesized relationships seems overly-complicated and some of the hypothesized relationships seem questionable. For example, the framework implies that the effect of social norms on compliance is mediated by attitudes on smoking restrictions, whereas I would contend that a direct effect is just as likely—people may conform with social norms even if they hold a negative attitude toward such norms. Also, legislation is shown as having a direct effect on attitudes, even though this relationship was tested in the survey and not found to exist in their research. Thus, while the Pederson framework presents some good starting ideas, it would benefit from updating, testing, and refining.

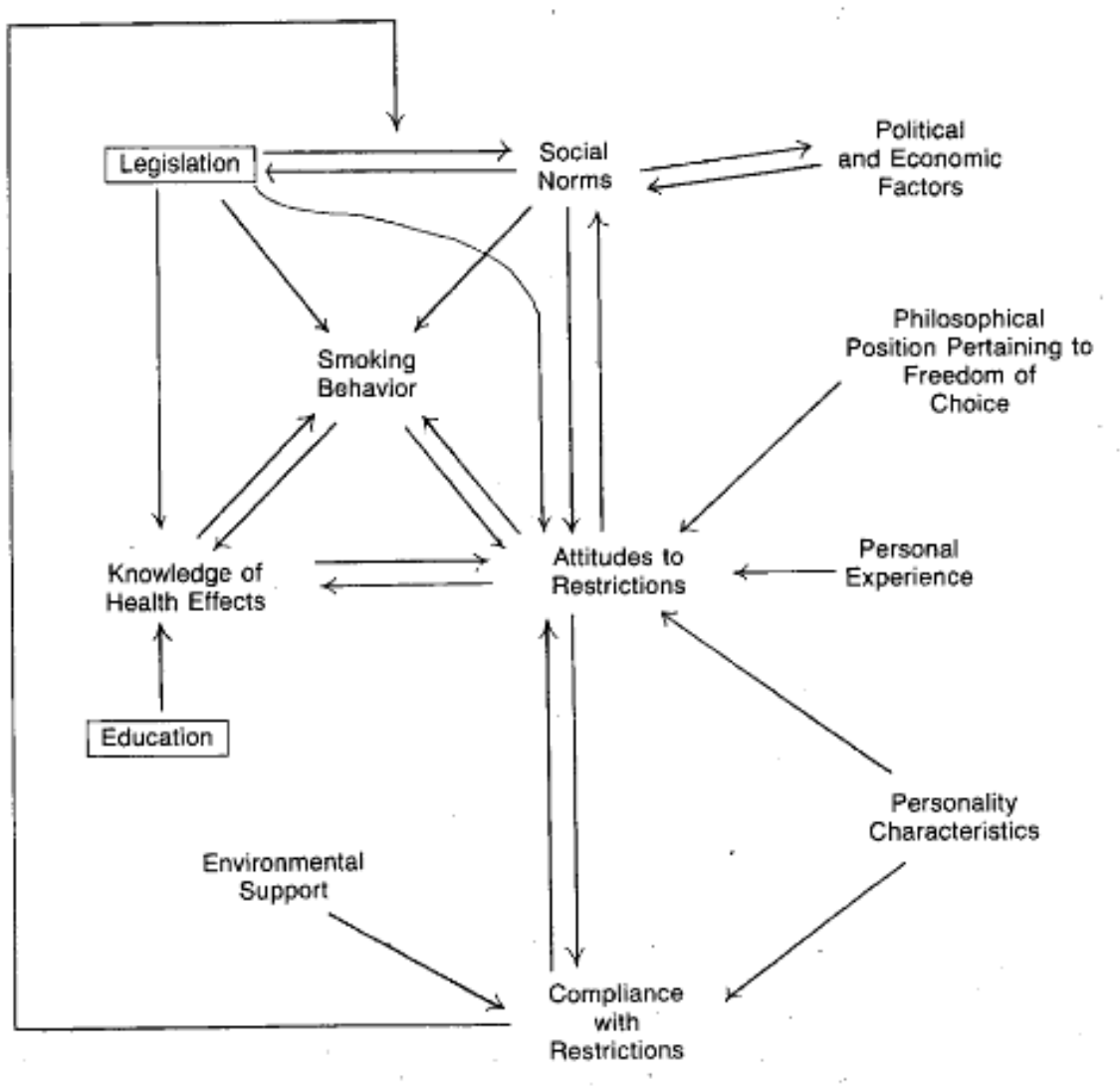

Figure 1. Pederson and colleagues' conceptual framework. Factors relating to compliance with smoke-free laws.[21]

A second paper uses the behavioral ecological model to understand the reasons for noncompliance with a smoke-free law by Israeli bar and pub owners.[22] The behavioral ecological model combines behavioral conditioning with an ecological model, revealing the multilevel influences on an individual's behavior (Figure 2).[18] In the study on Israeli pubs, the model is combined with interview findings to examine individual, local, community, and societal-level financial and social factors that work to either support or

weaken the smoke-free law. Many of the concerns expressed by bar and pub owners were similar to the thoughts of Indonesian restaurant and mall managers, such as concerns about unfairness of the application of the law, the rarity of enforcement, challenges with the built environment, and a desire to keep the environment relaxed rather than confrontational. This paper suggests that the issues in Israeli bars and pubs could be addressed by enforcing the law more consistently, raising fines to make them more meaningful, and launching a communications campaign to encourage the public to request smoke-free spaces. Thus the paper shows a use of the behavioral ecological model for organizing problems by their ecological level to come up with responsive measures. My critique of this model is that it appears to operate mainly as an organizing tool, and does not formally indicate the relationships between constructs at play in a smoke-free law. For example, the focus group findings presented via the model did not include participants' beliefs about the harmfulness of secondhand smoke, even though this would likely play a meaningful role in anyone's decision to enforce a smoke-free law.

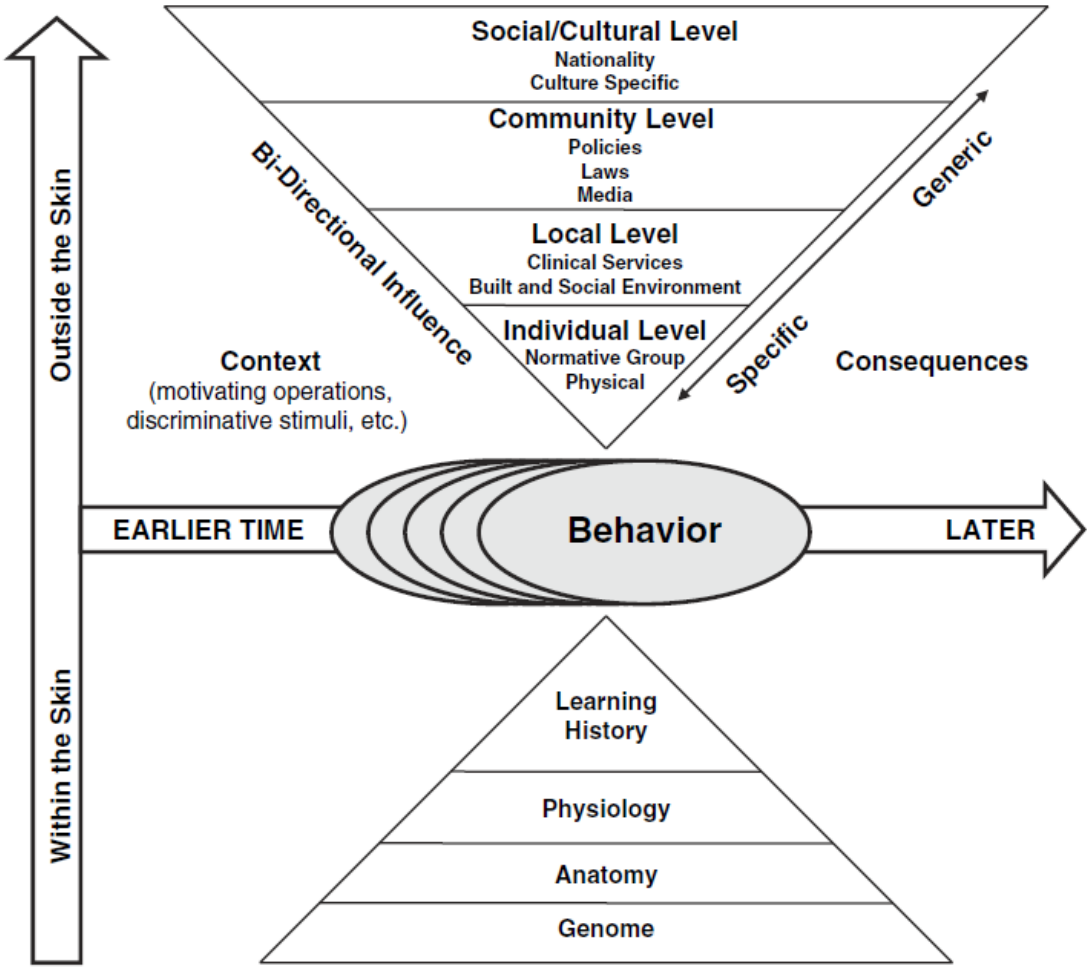

Figure 2. The behavioral ecological model.[18]

Outside of the tobacco control literature, there are numerous theories which are relevant from policy implementation research, criminal justice theory, and social psychology. As noted earlier, the advocacy coalition framework is one model which is useful for looking at the politics of smoke-free policy implementation. However, this theory does not address the complex social and contextual influences on implementation and compliance.[23] After reviewing a number of theories, I sought a model which focuses on social norms because smoke-free laws are public behavior and successful smoke-free laws rely on social enforcement,[24] indicating that social norms processes may be at the

core of functional smoke-free laws. I found that the TNSB provided the most complete description of how descriptive and injunctive social norms influence behavior. It was also helpful that the theory had been tested for its ability to predict the impact of these norms, and other theoretical constructs, on behavior.[25-28] However, the TNSB does not account for a number of significant factors relevant to a smoker's decision to follow or ignore a smoke-free law, such as their attitudes about the law, whether there are easy alternatives to violating the law, and how strong of a nicotine craving they have. The TNSB, as a general theory, also lacks the numerous details that influence the core constructs in the case of a smoke-free law, such as beliefs and knowledge about policies, and the role of the environment, role models, and a smoker's past experience in similar situations.

In the research agenda manuscript, I proposed developing a more complete conceptual model that explains how smoke-free laws work. This model, specific to the unique social and psychological processes at work, could be drawn from relevant elements of Pederson's compliance model, the behavioral ecological model, and the TNSB. The model could be constructed so that its hypothesized relationships can be tested, and can be focused on factors that are expected to influence compliance with the smoke-free law. In Appendix E I present a first draft of such a conceptual framework.

Religious venues as one place that is regulated

One of the aspects of the conceptual model to consider is whether the type of venue affects how compliance works. Officials with the Bogor City Health Department said in interviews that it had been especially challenging to achieve compliance in religious venues, especially those in the outskirts of the city where religious leaders were said to be more traditional. In the section of the research agenda regarding the need for

theory development, I suggest exploration of how implementation may differ based on the difference in social structures and authority dynamics across different venue types—schools, restaurants, places of worship, transportation, etc. Regarding religious venues, the concern as voiced by public health officials and participants in the focus groups is that it can be daunting to enforce a secular law on a religious institution. More research into implementation methods and success across venue types in cities, combined with a review of authority, conformity, and other social psychology processes, may lead to a better understanding of how compliance works in various venues. This could lead to suggestions for improving implementation in troublesome types of venues. Research can also explore whether findings about implementation by venue type transfer across different countries, or whether there are contextual influences.

In summarizing this section, the fieldwork conducted in Bogor to investigate the experience of one city in implementing a smoke-free law and the literature-review-based research agenda are complementary projects, each offering insights that inform the other. Their interactions reflect the complexity of human social interaction and behavior in public smoking behaviors and compliance with smoke-free policies.

RESEARCH QUESTIONS FOR THE FUTURE: FOR RESEARCH AND PRACTICE

A number of areas for future research have been listed in the research agenda and the other two manuscripts. Here I present additional suggested topics that arose through this project:

How have politics affected the implementation of the smoke-free law in Bogor?

In my 2010 and 2012 fieldwork trips to Bogor, I was able to learn about some of the politics involved in getting the smoke-free law passed. For example, at the time the legislation was being negotiated, there was a strong push from some legislators for allowing designated smoking areas in venues. Others, likely aware of the experiences of other countries, opposed any form of designated smoking areas. The compromise that was used to break the gridlock and get the law passed was to state in the law that designated smoking areas would be optional, and would follow specifications to be determined later by the mayor. Months later the mayor, a proponent of strong tobacco control, gave detailed specifics for these designated smoking areas, including that they be outdoors and approved by the health department. Thus, the end result was a law without indoor designated smoking areas.

As with the passage of the law, politics and political will likely play a decisive role in whether the smoke-free law in Bogor fully succeeds in implementation or instead fades away. This is especially true with the advent of the new Bogor mayor, who may have different priorities than the previous mayor, who expressed a personal sense of ownership of the smoke-free law. Per the advocacy coalition framework (Figure 3), within the policy subsystem of "smoke-free policy in Bogor," a key member of the "tobacco control coalition" is departing. The new mayor and any changes in city parliament represent an external subsystem event of changes in the governing coalition. Potentially the new mayor will join one of the coalitions, the "tobacco control coalition" or the "economic-focused coalition." This decision, along with any parliamentary changes may shift the balance of power regarding implementation of the smoke-free law. This could affect resources allocated to enforcement and public education efforts, and/or

lead to redrafting of the specifications for designated smoking areas. Future research, built on more interviews and a review of mainstream media (e.g., newspaper articles, news programing) may help document and interpret the politics in Bogor. As the advocacy coalition framework approach to policy implementation analysis suggests, it may take as long as a 10 year timeframe to fully understand the workings and outcome of Bogor's smoke-free law. The findings in my dissertation document some aspects of the first 4 years of this process. A full case study could be helpful in suggesting ways that other Indonesian or Southeast Asian countries can launch and sustain the implementation of similar smoke-free laws.

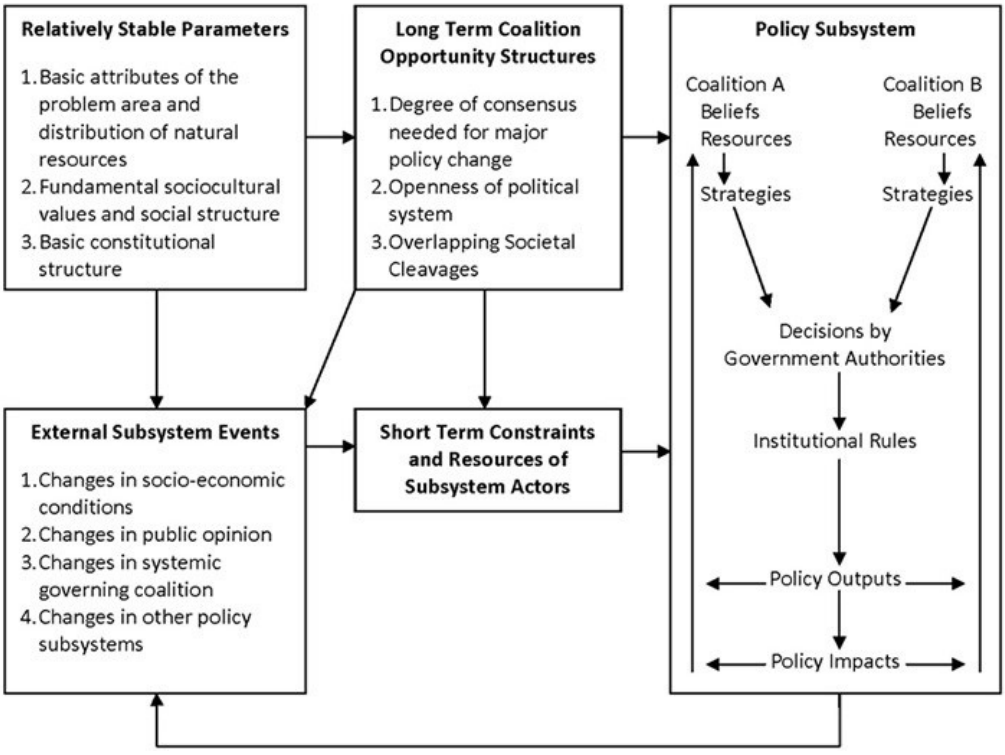

Figure 3. Model of the advocacy coalition framework. From WPPR, 2008. [29]

What is the perspective of mosque leaders in Bogor and other local Muslim leaders?

I did not manage to interview local religious leaders in my fieldwork, partially due to the difficulty and sensitivity of interacting with this group as an outsider. Through the networking and diligence of my Indonesian colleagues, I was able to attain interviews with leaders from the Bogor chapters of Muhammadiyah and NU. The Muhammadiyah leader was strongly supportive of the smoke-free law in Bogor, although he revealed that the organization has only a small following in Bogor. The NU official said that even though NU does not have a formal fatwa, he personally thought that if a smoke-free law prevents nonsmokers from being bothered, then it is a good idea and people should comply with it. As a future research question about Bogor, it could be helpful to engage in dialogue with local ustads and conduct focus groups with some of their followers to learn what role religious leaders are interested in playing and what stake they see for themselves as religious leaders (if any) in the process toward a smoke-free Bogor.

How do we ease concerns of public health imperialism?

As noted in the introduction, when Muhammadiyah first announced its fatwa against tobacco use, there were media accusations that the organization had only done so because of a grant they had been given by a US-based foundation (Bloomberg Philanthropies).[30] When I interviewed a city leader who was not directly involved in the smoke-free law, he talked about rumors he had heard that other countries wanted to weaken the traditional Indonesian kretek industry, either to replace it with white cigarettes or for other business motives. I learned that there are similar themes in some of the Indonesian books I found at a Bogor bookstore, including, Membunuh Indonesia: Konspirasi Global Penghancuran Kretek ("Killing Indonesia: The Global Conspiracy to

Destroy Kretek"), which in one chapter lists grants given by the Bloomberg Initiative, including those given to No Tobacco Community, an NGO in Bogor which has partnered with the health department to lead tobacco control. It would be useful to learn more about these books and similar media stories critical of international tobacco control efforts. Research could investigate whether any of these materials are supported by tobacco industry funds, and if so, expose this conflict of interest. Alternatively, if there are people who have misconceptions or who have earnest concerns, these should be understood so that they can be publicly addressed. Addressing the rumors could curtail their spread and growth, and work to improve the credibility of international tobacco control, and thus its receptivity by the public.

STRENGTHS & LIMITATIONS

The strengths of the Indonesian fieldwork were that numerous measures were taken to reasonably understand the social and cultural setting of Indonesia and be respectful of local ways of thinking and doing things: I began with a 2010 trip to Bogor in which I could build rapport with the local officials and learn more about the background of the law. I also read about Indonesian history and took language lessons in Bahasa Indonesia. In Bogor, I stayed with a Muslim Indonesian family to experience daily culture firsthand. Additionally, the focus group facilitators were native to the area, were fluent in Bahasa Indonesian, and were experienced in focus group facilitation.

One limitation of this project may be the transferability of the findings to other parts of Indonesia and other LMIC. Indonesia itself is diverse in many ways, and the people included in this sample may not be representative of people in other cities or in

rural areas. Additionally, in this project I alone conducted all the qualitative coding and analysis. In some qualitative methodological perspectives this is a standard analysis approach, while other schools of thought advocate for multiple coders. Third, even amid the many ways in which I tried to understand the situation in Bogor, I was an outsider, and there were elements of politics, norms, history, and culture that I feel I did not fully comprehend in my 4 month visit. Fourth, the focus group responses may have been influenced by the style of the focus group facilitators, and the interviewees may have been reticent to talk openly with a foreigner. Also, as all the formal data was collected in one time frame, questions about historical elements could suffer from recall bias, and it was not possible to make judgments about causality.

MY NEXT STEPS

Continued work is needed to support smoke-free laws and other tobacco control measures in Indonesia and other LMIC. In Bogor, a number of immediate possible projects have emerged in the conduct of this dissertation research. First, follow-up interviews could be conducted to understand how the implementation of Bogor's smoke-free law has proceeded in the past two years, especially amidst the transition to a new mayor. This project could include interviews with local religious leaders to learn about their perspective on tobacco use and their attitudes toward involvement in supporting the smoke-free law.

Second, work could be done to develop theoretically-informed, community-tested public communications to promote the smoke-free law in Bogor. Based on focus group discussions, I would like to test the results of adding a supplementary sign to complement

the official required signage, addressing the following points: 1) why the law exists (to protect people from poisonous smoke), 2) where smokers are allowed to smoke (anywhere there is no roof), and 3) that people seeing violations should politely ask smokers to stop. Beyond these themes on the signage, communications campaigns in Bogor should focus on raising awareness that the law exists and is in force and encouraging people to hold venues and smokers accountable for following the law. Messaging can also be tailored to Indonesian values. For example, from the focus group themes, the campaign could include encouraging Indonesian men to be thoughtful gentlemen, respectful of the people around them. Messages toward women could encourage them to speak up to protect their children from the effects of smoke.

Third, an analysis could be conducted of the Indonesian central government's new restrictions on marketing and requirement for new graphic warning labels on cigarette packages (effective July 2014). The interactions and possible multiplicative effects of these different policies could be examined. Finally, the broader applicability of this project's findings could be explored by examination of how the implementation of the law in Bogor compares with the experiences of other Indonesian cities, other Southeast Asian cities, and other Muslim countries.

CONCLUSION

Tobacco use and accompanying secondhand smoke exposure negatively affect the lives of billions of people in LMIC. Collaborative efforts by WHO and a strong network of international experts are making strides, but the vast majority of the world remains without the protection of comprehensive, fully-enforced smoke-free policies. The

systematic literature review and research agenda presented here suggest a number of areas in which targeted research can improve the implementation of smoke-free laws in LMIC. Additionally, the fieldwork data collected from the public, venue managers, and city leaders in Bogor inform practical recommendations to improve compliance with the smoke-free law in Indonesia, leveraging theoretical knowledge about social norms and practical findings about religious influence. They also pave the way for more detailed formative work that could guide a communications campaign to improve implementation. With continued work by tobacco control advocates and researchers, smoke-free policies can not only be passed, but also be successfully put into practice, protecting health and improving lives.

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APPENDIX A. BOGOR'S REQUIRED SMOKE-FREE SIGNAGE

Translation:
AREA WITHOUT SMOKE.
LOCAL REGULATION NUMBER 12 YEAR 2009
CONCERNING AREA WITHOUT SMOKE.
Administrative Sanctions:
Any Person who violates this the maximum fine is Rp. 100.000 [~$9].
Any Institution that violates this the maximum fine is Rp. 1000.000 [~$90].
Any Agency that violates this the maximum fine is Rp. 5000.000 [~$450].

APPENDIX B. RECRUITMENT MATERIALS

Recruitment Script 1: Leaders (Interviews)

[Recruitment of leaders will most likely be done via phone.]

Hello. My name is [name]. My colleagues and I are working on a research study of the Johns Hopkins Bloomberg School of Public Health in the United States about Bogor's 2009 law banning smoking in public places. I would like to tell you a little bit about the study and see if you are interested in participating. Do you have a few minutes?

[If no:] Is there a better time that we could discuss this?

[If yes:] We are looking at the perspectives and experiences of key government and NGO leaders, venue managers, and city residents regarding the smoke-free law in Bogor. The information we learn from this study may benefit Bogor and other cities looking to implement similar laws. In the first part of the study, we are interviewing key leaders who helped develop or implement the law. We have heard from [the Bogor City Health Department / other source] that you played an important role and we would like to ask if we can interview you for this project.

Your participation is entirely voluntary. If you choose not to participate there will be no negative consequences. If you participate, we will find a time and place for the interview that works for your schedule. We expect that the interview will last between 45 and 90 minutes. It will be conducted in Bahasa Indonesia by a Johns Hopkins researcher with the help of an interpreter. Or if you prefer, it can be conducted in English by the researcher alone. The questions will be about things such as your thoughts on the smoke-free law and the role you played in helping develop or implement it. You do not have to answer any questions that you do not want to. We will keep all information confidential and we will not use your name in any materials resulting from this research without your permission. We would like to audio-record the interview to make sure our notes are accurate, but if you prefer we will only take written notes. We will give you a small gift in thanks for your participation.

Do you have any questions? Would you like to participate?

[If yes:] Thank you. When would be a good time for you? Where would you like to meet? Also what is the best phone number to reach you at if we need to make any changes to the time or date? If you have any further questions or need to change the interview time or date, you can call or SMS [name] at [phone number].

Recruitment Script 2: Managers (Focus Groups)

Hello. My name is [name]. My colleagues and I are working on a research study of the Johns Hopkins Bloomberg School of Public Health in the United States about Bogor's 2009 law banning smoking in public places. We are looking at the perspectives and experiences of key government and NGO leaders, venue managers, and city residents. As one part of the study, we will be conducting focus groups (group discussions) with managers of [restaurants/other venue type] about their role in following and enforcing this law. What we learn from this study may help us improve the implementation of the law. We selected you to ask if you would like to participate because you are a manager of a location where the law applies.

Your participation is entirely voluntary. If you choose not to participate there will be no negative consequences. If you decide to participate, we will ask you to come to a focus group discussion where you will be part of a group of 6-10 other [restaurant/other venue type] managers. The focus group will be conducted in Bahasa Indonesia and will last about 1-2 hours. In the focus group, we will ask you about things such as your experience in enforcing this law in your venue and how you think this law could be improved. You do not have to answer any questions that you do not want to. We will keep all information confidential and we will not use your name or the name of your venue in any materials that result from this research. We will give you a small gift in thanks for your participation if you stay for at least 1 hour. We will also reimburse you for public transportation costs. We will be audio-recording the focus group, so if you are not okay with having your voice recorded you should not participate in this study.

Do you have any questions? Would you like to participate?

[If yes:] Thank you. Are you able to come to [location] at [date/time]?

[If yes:] May I ask your name and phone number? We will only use this information to remind you of the study or let you know of any changes in the time or location.

[Recruiter will type the person's name and phone number(s) into the recruitment list, and complete the reminder card and give it to the participant.]

Recruitment Script 3: Managers (Interviews)

Hello. My name is [name]. My colleagues and I are working on a research study of the Johns Hopkins Bloomberg School of Public Health in the United States about Bogor's 2009 law banning smoking in public places. We are looking at the perspectives and experiences of key government and NGO leaders, venue managers, and city residents. As one part of the study, we will be conducting interviews with managers of [restaurants/other venue type] about their role in following and enforcing this law. What we learn from this study may help us improve the implementation of the law. We selected you to ask if we can interview you because you are a manager of a location where the law applies.

Your participation is entirely voluntary. If you choose not to participate there will be no negative consequences. If you participate, we will find a time and place for the interview that works for your schedule. We expect that the interview will last between 45 and 90 minutes. It will be conducted in Bahasa Indonesia by a Johns Hopkins researcher with the help of an interpreter. Or if you prefer, it can be conducted in English by the researcher alone. In the interview, we will ask you about things such as your experience in enforcing this law in your venue and how you think this law could be improved. You will not need to answer questions that you do not want to. We will keep all information confidential and we will not use your name or the name of your venue in any materials that result from this research. We would like to audio-record the interview to make sure our notes are accurate, but if you prefer we will only take written notes. We will give you a small gift in thanks for your participation.

Do you have any questions? Would you like to participate?

[If yes:] Thank you. When would be a good time for you? Where would you like to meet? Also may I ask your name and phone number? We will only use this information to remind you of the study or let you know of any changes in the date or time.

[Recruiter will type the person's name and phone number(s) into the recruitment list, and complete the reminder card and give it to the participant.]

Recruitment Script 4: City Residents (Focus Groups)

[Screening questions were placed after the introduction so as to not unfairly waste the time of people who are immediately ineligible because of their age/smoking status/etc.]

Hello. My name is [name]. My colleagues and I are working on a research study of the Johns Hopkins Bloomberg School of Public Health in the United States about laws banning smoking in public places. We are looking at the perspectives and experiences of key government and NGO leaders, venue managers, and the people of Bogor. As one part of the study, we will be conducting focus groups (group discussions) with [restaurant/other venue type] patrons. We selected you because we are asking every [N]th person who comes to this [restaurant/place] whether they would like to participate.

Participation is completely voluntary. Can I ask you a few questions to see if you are eligible for this study?
[If yes:] Thanks.

1. [If not obvious:] Are you male or female?
2. What is your age?
3. Have you smoked a cigarette or kretek in the past month?
4. Do you work for a tobacco company?
    [If yes:] Can I ask what your job title is?

[If not eligible:] Thank you for your time, but [we already have the people we need for your gender/age/smoking status group OR employees of tobacco companies at a level higher than street-level retailers are not eligible for this study].

[If eligible:] It looks like you are eligible. Again, participation is completely voluntary. If you decide to participate in this study, we will ask you to come to a focus group session where you will be part of a group of about 6-10 other people who are like you in terms of gender, age group, and whether they smoke or not. The focus group will be conducted in Bahasa Indonesia and will last about 1-2 hours. In the focus group, we will ask you about things such as what you think about laws banning smoking in public places. You do not have to answer any questions that you do not want to. We will keep all information confidential and we will not use your name in any materials that result from this research. We will give you 75,000 rupiah for your participation if you stay for at least 1 hour. We will also reimburse you for public transportation costs. We will be audio-recording the focus group, so if you are not okay with having your voice recorded you should not participate in this study.

Do you have any questions? Would you like to participate?

[If yes:] Thank you. Are you able to come to [location] at [date/time]?

[If yes:] May I ask your name and phone number? We will only use this information to remind you of the study or let you know of any changes in the time or location.
[Recruiter will type the person's name and phone number(s) into the recruitment list, and complete the reminder card and give it to the participant.]

REMINDER CARD

Reminder about research study on smoke-free laws
Johns Hopkins Bloomberg School of Public Health (USA)

Rp. 75.000

Date: _____

Time: _____

Location: _____

It is important that you attend. Please call or SMS [name] at [phone number] if you are unable to attend or if you have any questions. Thank you.

APPENDIX C: INTERVIEW AND FOCUS GROUP GUIDES

Guide 1. Questions for Interviews with Key Leaders

1. Can you tell me about your role in the creation or implementation of this law (putting the law into action)?
2. What things did you consider in deciding how to implement this law?
3. Did you think this was going to be a difficult law to implement?
    - Probe: Why or why not?
    - Probe: What challenges did you think you would face?
4. How was the law presented to the public?
    - Probe: What was the public told about why the law was needed?
    - Probe: What was the public told about how the law would be implemented?
5. How do you think this law affects people's social habits?
6. Do you think men have more difficulty complying with the smoke-free law than women?
    - Probe: Why or why not?
7. What is your opinion of the smoke-free law?
    - Probe: Has your opinion changed over time?
8. Have the perspectives of Muslim organizations and leaders influenced your opinion of the law?
    - Probe: Has it influenced the public's opinion about the law?
9. What have you heard from other people regarding whether they like or dislike the law? - Probe: Do you think people's opinions about the law have changed over time?
10. How would you describe the status of the enforcement and compliance with the law so far?
    - Probe: How has this changed over time?
11. What unexpected challenges have you faced in implementing this law?
12. In implementing this law, did you consider a media campaign or other interventions to decrease the social acceptability of smoking?
13. What might you suggest as ways to improve the implementation of this law or increase compliance?
14. Where would you say the idea for a smoke-free law in Bogor came from?
15. What do you think about the future of the law?

[Additional questions may vary based on the specific role of the informant.]

Guide 2. Questions for Focus Groups with Venue Managers

1. Is smoking common in Bogor?
    - Probe: Why do you think this is the case?
2. If a person smokes in public, is that considered acceptable?
    - Probe: Do people say anything if they want to smoke around another person?
3. I am going to show you some photos of different venues. For each one let me know if you think smoking should be allowed in this venue or banned. Why? [Focus group facilitator shows each photo in turn, leaving previous photos on the table]
4. What have you heard about laws that restrict smoking in Bogor?
5. What have you been told officially about the smoke-free law in Bogor?
    - Probe: Where did you hear about it (what channels of communication)?
    - Probe: Do you feel like you have been given enough information?
    - Probe: What other information do you think you need?
6. [Show photographs again] In which of these venues do you think the law bans smoking?
7. Why do you think the city passed this law?
8. How do you feel about this law?
    - Probe: Is it a reasonable law to have?
    - Probe: Have your opinions changed over time?
9. What have you heard from other people about how they feel about this law?
    - Probe: Do other people seem to think it is a reasonable law?
    - Probe: Do you think peoples' opinions have changed over time?
10. How do you think this law affects people's social interactions?
11. Do you think men have more difficulty complying with the smoke-free law than women?
    - Probe: If so, why?
12. Have the perspectives of Muslim organizations and leaders influenced your opinion of the law?
    - Probe: Has it influenced other people's opinion about the law?
13. Do you feel like the law is being fairly applied to all businesses?
    -Probe: Why or why not?
14. Do business leaders talk about this law?
15. Do you think this law is working well in reducing smoking in public places?
    - Probe: Why or why not?

16. Has the law changed the behavior of your venue patrons?
    - Probe: In what way?
17. Whose responsibility do you feel it is to enforce the law?
18. Do you feel comfortable asking patrons not to smoke?
    - Probe: Why or why not?
19. Have you asked patrons not to smoke?
    - If yes:
        - Probe: How often do you find yourself asking patrons not to smoke?
        - Probe: What did the smoker say and do in response?
20. What effect do you think this law is having on your business?
21. What would make it easier for you to make your venue smoke-free?
22. Do you think a smoke-free law can work in Bogor?
    - Probe: Why or why not?
23. Do you think this law will become more broadly accepted in the future?
    - Probe: Why or why not?

Guide 3. Questions for Interviews with Venue Managers

Interviews with venue managers will be done using the same questions as in the focus groups.

Guide 4. Questions for Focus Groups with City Residents

1. What kinds of places do people smoke in Bogor?
2. What time of day do people smoke?
3. Is smoking common in Bogor?
    - Probe: Why do you think this is the case?
4. Do people smoke around other people?
    - Probe: Do people say anything if they want to smoke around another person?
5. What do you think your friends would think about when deciding to smoke in public or not?
6. If a person smokes in public, is that considered acceptable?
7. I am going to show you some photos of different venues. For each one let me know if you think smoking should be allowed in this venue or banned. Why? [Focus group facilitator shows each photo in turn, leaving previous photos on the table]
8. Are there any laws that restrict smoking in Bogor?
    - Probe: What do these laws state?
9. [Show photographs again] In which of these venues do you think the law bans smoking?
10. Have you seen signs that ban smoking?
    - Probe: Where have you seen them?
    - Probe: What do they say?

[If the group is unaware of the law, tell them that there is a new law that bans smoking in most public places including restaurants, public transportation, and workplaces.]

11. Who made this law?
    - Probe: Why do you think they made it?
12. How do you feel about this law?
    - Probe: Is it a reasonable law to have?
    - Probe: Have your opinions changed over time?
13. What have you heard from other people about how they feel about this law?
    - Probe: Do other people seem to think it is a reasonable law?
    - Probe: Do you think peoples' opinions have changed over time?
14. Do people follow this law?
    - Probe: Have you seen anyone telling people not to smoke because of this law?
    - Probe: Have you seen anyone get a fine because of this law?
15. How do you feel about the way this law has been put into action (implemented)?

- Probe: Does it feel like the law is being fairly applied?

16. Have you asked anyone to stop smoking around you because of this law?
17. How do you think this law affects people's social interactions?
18. Do you think men have more difficulty complying with the smoke-free law than women?

    - Probe: If so, why?

19. Have the perspectives of Muslim organizations and leaders influenced your opinion of the law?

    - Probe: Has it influenced other people's opinion about the law?

20. Do you think a smoke-free law can work in Bogor?

    - Probe: Why or why not?

21. What things could be done to make this law or its implementation better?
22. Do you think this law will become more broadly accepted in the future?

    - Probe: Why or why not?

APPENDIX D: QUALITATIVE DATA ANALYSIS CODEBOOKS

Codebook 1. Preliminary Coding

Mnemonic / brief code	Full description of code	When to use code. Example use of code.
01.0 SOC-CULTURAL	Res. Q 1: How did Bogor's leadership take social and cultural context into account in implementing the smoke-free law?	Use 01 grouping of codes according to the parameters listed below.
01.1 TARGET GROUPS	Groups that health department focused their efforts on.	Use whenever discussing target groups that were focused on for education/enforcement. Example: "So in 2000, and, until 2010, we give socializations to schools, offices, and also drivers, ya, the society."
02.0 FACTORS IN IMPLEMENTATION	Res. Q 2: Learning from Bogor's experience, how should international best practices for the implementation of smoke-free laws be modified to take into consideration social and cultural context?	Use 02 grouping of codes according to the parameters listed below.
02.1 MASCULINITY	Maleness or masculinity.	Use whenever masculinity is mentioned. Example: "It'd be easier for men to quit smoking."
02.2 FEMININITY	Femaleness or femininity.	Use whenever femininity is mentioned. Example: "It's very unlikely for a woman to smoke on an angkot [public bus]."
02.3 RELIGION	Religion or religious terms.	Use whenever religion is mentioned. Example: " I may be a Muslim but the person next to me may be a non-Muslim so he will not be affected. "
02.4 LAW COMPLIANCE CULTURE	Typical Indonesian compliance with laws.	Use whenever discussing how Indonesians comply with laws. Example: "aah… in Indonesia, rules are made to be broken."
03.0 NORMS	Res. Q3: What is the relationship between the new smoke-free law and the normative environment and what steps can be taken to shift the norms to align with the law?	Use 03 grouping of codes according to the parameters listed below.
03.1 WHERE SMOKE	Where and when smokers smoke.	Use when describing where people smoke. Example "Public places, usually. But yes, even though it is in the office, maybe people smoking secretly. "
03.2 SPEAKING UP TO SMOKERS	Asking smokers not to smoke around them.	Use when describing cases where someone asks a smoker to put out their cigarette. Example: "a youth smoked in the public vehicle and then I said, 'Kid, put off the cigarette, please. The smoke goes everywhere and affects everyone'."

03.3 DECIDING WHERE TO SMOKE BASED ON PEOPLE AROUND THEM	Smokers talking about how they think about who is around them when they smoke.	Use when smokers refer to the people around them as a consideration. Example: "Maybe if we want to smoke and then we see there are a lot of small kids there, and then families, or pregnant women, we will surely smoke farther away or outside that area."
0.35 ASKING PERMISSION TO SMOKE	Smokers asking permission before smoking.	Use whenever there is discussion of a smoker asking someone if it's okay to smoke. Example: "It is for sure they will not say anything. Mostly are like that. It is rare that people want to care for err…how do I say it…ck…err… ask first, ask for permission first."
03.4 NO SMOKE IN A/C	The social norm that people don't smoke in places that have air conditioning.	Use whenever participants talk about air conditioning as a criterion for not smoking in a place. Example: "meanwhile, it is actually not allowed to smoke in a room with AC. That's it. "
03.5 PASSIVE VS. ACTIVE SMOKING	The belief that passive smoking is more harmful than active smoking.	Use whenever there is reference to the idea that passive smoking is more harmful than active smoking. Example: "Sometimes the negative impacts on a passive smokers are more than those on the active smokers, you see. "
03.6 MAJORITY OF PEOPLE SMOKE	Comments regarding how the majority of men are smokers.	Use when there are references to the majority of men being smokers. Example: "It is more difficult for men because most men are smokers so the encouragement to smoke is strong. "
04.0 ENFORCEMENT	Actions of enforcement of the smoke-free law.	Use when people talk about how the law is being enforced. Example: "Let alone seeing others having to pay the fine, even us, ourselves, we have never experienced it. "
05.0 GOVT EXAMPLE	The example set by government employees regarding the law.	Use when participants talk about the example set by government employees. Example: "It is such a lie..yes.. for people who are smokers here, no awareness yet, from the officers themselves, many of them are still smoking. "
06.0 INTERNATIONAL INFLUENCE	The influence of extra-Indonesian forces affecting the creation or implementation of this law.	Use when there is mention of foreign influences/involvement in the smoke-free law. Example: "Yes, first, this Smoke Free Area idea comes from other countries. "
07.0 INDOOR/OUTDOOR CONFUSION	Talking relating to how indoors/outdoors in Indonesia are not that different.	Use when there are discussions of areas that are ambiguously indoors/outdoors. Example: "In my opinion, it is fine actually because it is… an open space, the room… so the smoke will goes out immediately, you see. "
08.0 ADVICE	Advice about how to make the smoke-free law more effective.	Use when people are giving advice about how the law could work better. Example "the sanction should be more severe."
09.0 OTHER NOTEWORTHY	Misc. category of other interesting themes that arose in the groups.	Use 09 grouping of codes according to the parameters listed below.
09.1 SOUR MOUTH	People smoke when their mouth feels sour.	Use whenever someone talks about their mouth being sour in relation to smoking. Example: "when I didn't smoke, my mouth felt sour "
09.2 WANT DSA	People saying that there	Use when people suggest more designated

	should be designated smoking areas provided	smoking areas. Example: "some said that there are not enough places. There should be a special place for smoking."
09.3 CORRUPTION	How corruption may influence the implementation of the law	Use whenever corruption is alluded to. Example: "For people who have money, they will surely bribe the officer "
09.4 REASONS FOR SMOKING	Explanations as to why smokers smoke.	Use when people say their reasons for smoking. Example: "Well, at first because I was bored, to kill the time. And then I am become addicted. "
09.5 RIGHT TO SMOKE	Saying that there is a "right to smoke."	Use when there are references to a right to smoke. Example: "However, it is also their right to do that, we cannot be too strict."
09.6 CLOSE CIG FACTORIES INSTEAD	Comments that the solution is to close cigarette factories.	Use when people refer to the idea of closing cigarette factories. Example: "Why the government makes this kind of rule, and why is it implemented, not to smoke. Why not the manufacturers that they fight. It is better to close the manufacturers"
09.7 WHY SOME MALLS, NOT OTHERS	Why the smoke-free law works better in some malls than others.	Use when people explain why the smoke-free law works better in some malls than others. Example:" yes, the people who visit the mall. If they are people from middle to upper class, they are more educated. We do not have to be harsh on them. "

Codebook 2. For Social Norms Manuscript (Chapter 4)

Mnemonic / brief code	Full description of code	When to use code. Example use of code.
01.0 NORMS AROUND SMOKING	Relating to norms about smoking.	Use 01 grouping of codes according to the parameters listed below.
01.A WHERE SMOKE	Where people smoke in Bogor.	Use for comments about where people smoke in Bogor. Example: "I saw people smoke in restaurants."
01.B WHEN SMOKE	When people smoke in Bogor.	Use for comments about when people smoke in Bogor. Example: "Leisure time, while we are resting of after lunch or when we are dizzy thinking about so many things, so we take a break and smoke first."
01.C WHY SMOKE	Why people smoke.	Use for comments about why people smoke. For example: "Well, at first because I was bored, to kill the time. And then I am become addicted."
01.D WHO SMOKE AROUND	Who a smoker smokes around.	Use for talk about who a smoker smokes around. For example: "I will see the situation first, (p) that's what I think, like that. If the situation is comfortable, I will smoke but if I see many toddlers there, I will restraint myself from smoking for a while."
01.E JUST CLOSE MANUFACTURER	The solution is to close the manufacturers, not make places smoke-free.	Use for comments relating to closing tobacco manufacturing. For example: "if they want to prohibit smoking, why don't they just close the manufacturer?"
01.F WHY SMOKING COMMON	Why smoking is common in Bogor/Indonesia.	Use for comments about why smoking is common in Bogor. For example: "*Facilitator: Why is it common?* Participant: because of the environment."
01.G HARDER FOR MEN OR WOMEN	Whether the smoke-free law is perceived to be harder for men or women to comply with.	Use for comments relating to whether the law will be harder for men or women to comply with. For example: "it's more difficult for men because when a man wants something, it has to be fulfilled."
01.H RAISE PRICES	Saying that cigarette prices should be raised.	Use for comments about how cigarette prices should be raised. For example: "In my opinion it is difficult to close the manufacturers. A simple thought from me will be making the cigarettes expensive. "
01.I NO SMOKE IN A/C	Comments about smoking and air-conditioning.	Use for comments about smoking and air-conditioning. For example: "meanwhile, it is actually not allowed to smoke in a room with AC. That's it. "
01.J NORMS RE SIGNS	Norms regarding smoke-free signs.	Use for comments about smoking and smoke-free signage. For example: "Like in Puskesmas [public health center]. Yes, there is a no smoking sign, still many people still smoke. "

01.K DIFFICULTY OF CESSATION	Difficulty of cessation.	Use for talk about the difficulty of smoking cessation. Example: "On the contrary, what I want is a solution of how to give up smoking. Perhaps, I'm beginning to get bored, but since I'm hooked, it's difficult to quit entirely."
01.L WHO SHOULD REGULATE KTR	Ideas about what agency should regulate KTR (the smoke-free law)	Use for comments about who should regulate the smoke-free law. Example: "*Facilitator: which party is most suitable to implement the Perda on Smoke Free Area in Bogor City?* Participant: In my opinion, the local government like RT/RW [the neighborhood-level government]."
02.0 SPEAKING UP TO SMOKERS	Experiences of asking smokers not to smoke around them.	Use 02 grouping of codes according to the parameters listed below.
02.A SPEAKING UP - FROM SMOKERS' PERSPECTIVE	Experiences of speaking up to smokers, from the smoker's perspective.	Use for experiences of smokers being told not to smoke. For example: "usually we also find someone who says, 'please stop smoking, the smoke is not nice.'"
02.B SPEAKING UP-FROM NONSMOKERS' PERSPECTIVE	Experiences of speaking up to smokers, from the non-smoker's perspective.	Use for experiences of people asking smokers not to smoke around them. For example: "I once warned a person but he talked back to me."
02.C ACCEPTABILITY OF SMOKING IN PUBLIC	The acceptability of smoking in public.	Use for comments about the acceptability of smoking in public. For example: "*Facilitator: If someone smokes in public, do you think that is acceptable?* Participant: Depend on the place. If it is a closed space, then it is not allowed to smoke. If it is an open space, then it is alright to smoke. "
03.0 RESPONSES TO PHOTO STIMULUS	Responses to the photos of example venues.	Use 03 grouping of codes according to the parameters listed below.
03.A SMOKERS-OPINION-OK TO SMOKE	Opinions from smokers about venues where it is okay to smoke.	Use for opinions of smokers that it is okay to smoke in the photographed venue. Example: "[Photo] number 3, I think this place is appropriate for smoking, very convenient."
03.B SMOKERS-OPINION-NOT OKAY TO SMOKE	Opinions from smokers about venues where it is not okay to smoke.	Use for opinions of smokers that it is not okay to smoke in the photographed venue. Example: "I think [photo] #5 is not a convenient place because there are many people who are eating there. Afraid that we will disturb them if we smoke because of the smoke."
03.C SMOKERS-LAW-OK TO SMOKE	Smokers' beliefs about where the law says it is okay to smoke.	Use for smokers' perspectives about where the law says smoking is acceptable. Example: "For [photo] number 2, smoking is not prohibited."
03.D SMOKERS-LAW-NOT OK TO SMOKE	Smokers' beliefs about where the law says it is not okay to smoke.	Use for smokers' perspectives about where the law says smoking is not acceptable. For example: "Not allowed (to smoke there)..because it is a public place,

		and people from all ages come."
03.E NONSMOKERS-OPINION-OK TO SMOKE	Opinions from nonsmokers about venues where it is okay to smoke.	Use for opinions of nonsmokers that it is okay to smoke in the photographed venue. Example: "for me, I guess it is OK to smoke there because it is quite an open air."
03.F NONSMOKERS-OPINION-NOT OK TO SMOKE	Opinions from nonsmokers about venues where it is not okay to smoke.	Use for opinions of nonsmokers that it is not okay to smoke in the photographed venue. Example: "In my opinion, people should not smoke in all those places."
03.G NONSMOKERS-LAW-OK TO SMOKE	Nonsmokers' beliefs about where the law says it is okay to smoke.	Use for nonsmokers' perspectives about where the law says smoking is acceptable. Example: "It is alright to smoke because it is an open space."
03.H NONSMOKERS-LAW-NOT OK TO SMOKE	Nonsmokers' beliefs about where the law says it is not okay to smoke.	Use for nonsmokers' perspectives about where the law says smoking is not acceptable. Example: "for the law perspective, I think we are not allowed (to smoke there), because it is still a public space."
04.0 K/A/B ABOUT LAW	Knowledge, attitudes, and behaviors relating to the law.	Use 04 grouping of codes according to the parameters listed below.
04.A SMOKER'S KNOWL. ABOUT LAW	Smokers' knowledge about the law.	Use for smokers' knowledge about the law. Example: "well, I don't know about the content. It's just like smoking in public transportation is not allowed."
04.B SMOKER'S ATTIT, BEHAV. ABOUT LAW	Smokers' attitudes or behaviors about the law.	Use for smokers' attitudes or behaviors regarding the law. Example: "Yes, that's a good regulation, good for health. Even though I am a heavy smoker, I still support the regulation."
04.C NONSMOKER'S KNOWL. ABOUT LAW	Nonsmokers' knowledge about the law.	Use for nonsmokers' knowledge about the law. Example: "maybe, yes, also maybe it can be made clearer in the media... Not many people know already that there is actually a strong rule about it. "
04.D NONSMOKERS' ATTIT, BEHAV. ABOUT LAW	Nonsmokers' attitudes or behaviors about the law.	Use for nonsmokers' attitudes or behaviors regarding the law. Example: ": It is fair because smokers can still enjoy smoking actually because they provide places for them, in those smoke free areas. "
04.E WHAT SMOKERS HEAR FROM OTHERS RE: KAB ABOUT LAW	What smokers' have heard from other people regarding knowledge, attitudes, or behaviors relating to the law.	Use for smokers' comments about what other people say about the smoke-free law. Example: "I have a friend and we had chat about it. It is good, but he still smokes. Like in the mall, he still smokes."
04.F WHAT NONSMOKERS HEAR FROM OTHERS ABOUT LAW	What nonsmokers' have heard from other people regarding knowledge, attitudes, or behaviors relating to the law.	Use for what nonsmokers have heard from other people about what they say about the law. Example: "From what I heard from angkot [public bus] driver...'Why does the local government make regulation on not to smoke like that? It's my own money, it is up to me

		what to do with the money."
04.G PERCEPTIONS OF CHANGE OVER TIME OF PEOPLES' OPINIONS	Perceptions about how perspectives on the smoke-free law have changed over time.	Use for comments about how perspectives on the law have changed over time. Example: "Five years ago, it was still quite free but now there are people who ask us to stop smoking."
04.H WE NEED DESIGNATED SMOKING AREAS	Idea that more designated smoking areas are needed.	Use for suggestions for more designated smoking areas. Example: "The government should provide more smoking areas so the more areas they have for smoking, they will not smoke everywhere."
04.I PASSIVE VS. ACTIVE SMOKING	Belief that passive smoking is more harmful than active smoking.	Use for comments relating to the idea that passive smoking is more dangerous than active smoking. Example: "As much as possible, when there are other people who smoke near us, we have to ask them to stop them because the smoke is more dangerous for us compared to for the people who smoke."
05.0 ENFORCEMENT	Relating to the enforcement of the law.	Use 05 grouping of codes according to the parameters listed below.
05.A SMOKERS BEING ENFORCED UPON	The law being enforced upon smokers.	Use for comments about the presence or absence of enforcement. Example: "there is no fact yet regarding the implementation of the sanction for violating the rules."
05.B SMOKERS BEING FINED	Smokers being fined.	Use for comments about smokers being fined (or not) for smoking. Example: "Never seen anyone gets any fine, never see it with my own eyes."
05.C CAN KTR WORK	Ideas about whether the smoke-free law can work in Bogor.	Use for comments relating to whether the smoke-free law can work in Bogor. Example: "*Facilitator: Are you sure that this Perda can be implemented effectively in Bogor City?* Respondent: insya allah [God willing], yes... as long as there is a willingness from the people."
05.D HOW TO MAKE KTR WORK	Suggestions on how to make the smoke-free law work.	Use for suggestions about how to make the smoke-free law work better in Bogor. Example: "the writing should be more interesting, can be seen by more people, and then education should be performed often."
06.0 IMPLEMENTATION	Relating to the implementation of the law.	Use 06 grouping of codes according to the parameters listed below.
06.A SOCIALIZATION THAT HAS TAKEN PLACE	Comments relating to the socialization (communications/education) that have taken place in Bogor in relation to the law.	Use for comments about communications efforts that have taken place related to the smoke-free law. Example: "So in 2000, and, until 2010, we give socializations to schools, offices, and also drivers, ya, the society."
06.B ENFORCEMENT LOGISTICS	Ideas about the enforcement logistics relating to the law.	Use for talk about the logistics of how enforcement happens. Example: "I once

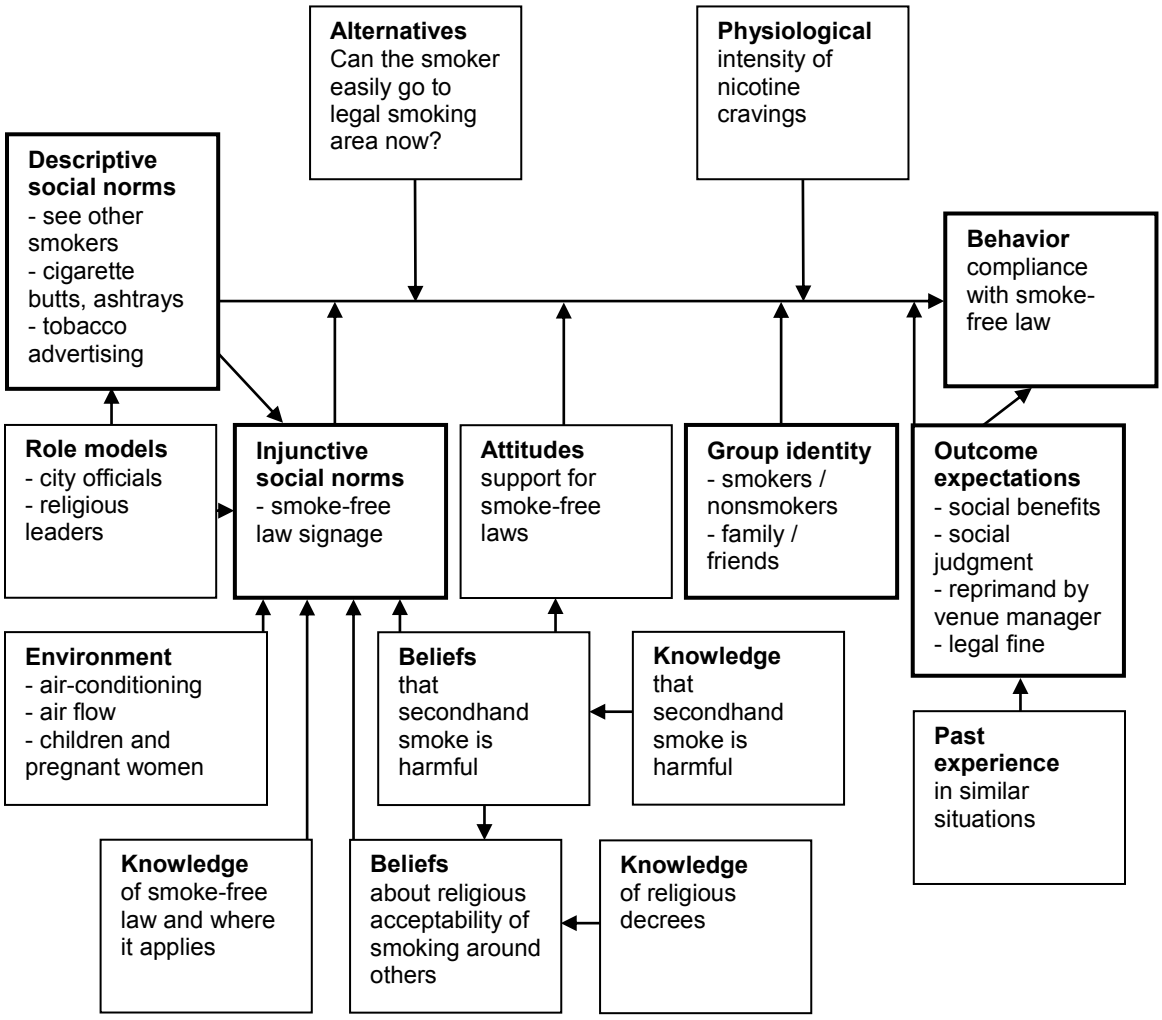
		saw that in Pasar Anyar [a market], sometimes once every two months they do it, in front of Bakso Apollo [a store], they put a tent there and then the officers enter the market and sweep the market alleys."
06.C RESPONSES TO ENFORCEMENT	What has been said in response to enforcement actions.	Use for what people have said in response to enforcement actions. Example: "Some people say that, 'I'm not from Bogor', ya. ... some people is okay, they pay, some people are angry."
06.D HYPOCRISY/CORRUPTION	Comments relating to government hypocrisy or corruption.	Use for comments relating to hypocrisy or corruption. Example: "The problem is that the people who make the rule also violate that rule."
07.A OTHER IGNORED LAWS	Discussion of other laws that are ignored.	Use for comments about other laws that are not followed. For example: "*Facilitator: What law that is not followed?* Participant: like throwing garbage, easy, no need money, they still throw garbage to the river when they should throw them to a garbage can."

Codebook 3. For Religion Manuscript (Chapter 5)

Mnemonic / brief code	Full description of code	When to use code. Example use of code.
A IS SMOKING HARAM OR MAKRUH?	Comments about the Muslim classification of smoking as haram (forbidden) or makruh (discouraged).	Use "A" grouping of codes according to the parameters listed below.
A1 STATUS-MAKRUH	Smoking as being classified as makruh.	Use when a person describes smoking as makruh. Example: "Smoking is makruh, but what can I do?"
A2 STATUS-HARAM	Smoking as being classified as haram.	Use when a person describes smoking as haram. Example: "Anything that will give negative impacts is haram."
A3 STATUS-UNSURE	Uncertainty about the classification of smoking.	Use when a person expresses confusion about the status of smoking. Example: "Is it true that cigarette is haram?"
A4 STATUS-DEBATE	Referring to the religious leaders' discussion about the status of smoking.	Use when a person discusses the religious debate over the status of smoking. Example: "because they once debated about the cigarette haram status."
B SPONTANEOUSLY BROUGHT UP RELIGION	References to religion not initiated by the facilitator or another respondent.	Use when a person alludes to religion outside of the religion-focused questions. Example: "There are women, children, but they smoke as they like. That is dzalim [Islamic term for evil]. That is a big sin."
C NO SMOKING SIGNS AT MOSQUE	Smoke-free signage in religious places.	Use when a person talks about smoke-free signage in religious places. Example: "in places like the 8 places, hospitals, that is appropriate, in mushalla [Muslim prayer rooms], that is appropriate, but some are posted in open spaces, the smoke free area. That is inappropriate."
D RELIGIOUS GROUPS	Discussing of the perspective of Muslim groups.	Use D grouping of codes according to the parameters listed below.
D1 MUHAMMADIYAH	Discussing the perspective of Muhammadiyah on smoking.	Use when people are talking about Muhammadiyah's perspective on smoking. Example: "Muhammadiyah once said that smoking is haram. Maybe Muhammadiyah was also involved in making the rules."
D2 NU	Describing the perspective of NU on smoking.	Use when people are talking about NU's perspective on smoking. Example: "cigarettes are makruh. . . I heard that from NU."
D3 GENERAL RELIG LEADERS OPINION	Describing the perspective of general Muslim leaders on smoking.	Use when people describe the influence of a religious leader (other than one specified as a Muhammadiyah or NU leader). Example: "Recently, there was a religious leader who said smoking was haram. "
E SMOKING IN PUBLIC IS HARAM	Smoking in public places as haram.	Use when someone talks about the status of smoking in public places as haram. Example: "now, actually smoking is not haram, it is makruh. Only haram when it is in public places

		because the smoke, the smell and flavor may cause people who do not smoke to experience difficulty in breathing and coughing."
F RESPONSE TO FACILITATORS Q ON RELIGION	Responses to when the facilitator asks the question about the impact of religious leaders' statements on smokers' behavior.	Use when people are giving responses to the facilitator's question about the influence of religious leaders. Example: "*Facilitator: How does the opinion of a leader of a religious organization affects your opinion on the smoke free area regulation?* Participant: for me, it has no influenced."
G IT'S UP TO INDIVIDUAL	Comments that the influence of religious statements on people depends on the individual's perspective.	Use when people say that the influence of a religious leaders' statement on a person depends on that person's perspective. Example: "as stated by [another participant] it is an individual matter. Because it depends on each individual."
H OTHER RELIGIONS	Comments about religions other than Islam.	Use when people talk about religions other than Islam. Example: "He disagree with the smoker, because in his, in the Christian, Christian still think that it is harmful."

APPENDIX E: DRAFT OF CONCEPTUAL MODEL OF A SMOKE-FREE LAW



Draft of conceptual depicting constructs hypothesized to influence a smoker's compliance with a smoke-free law.

Description of the Draft of a Conceptual Model of a Smoke-Free Law:

The pictured conceptual model is a first draft attempt at depicting constructs hypothesized to influence a smoker's compliance with a smoke-free law. The model is informed by this project's systematic review and fieldwork, combined with constructs and ideas from Pederson's model of compliance,[1] the behavioral ecological model,[2] and the theory of normative social behavior (TNSB).[3]

The model was created starting with the TNSB as the backbone, because I contend that social norms are at the core of what influences compliance with a smoke-free law. The TNSB posits that the effect of descriptive norms on behavior is moderated by injunctive norms, group identity, and outcome expectations.[3] *Descriptive social norms* (perceptions about what other people do) are influenced by whether the smoker sees other smokers around, evidence that other people have smoked there (cigarette butts, ashtrays), or tobacco advertising implying it is normative to smoke in the venue. For example, in Bogor, smokers said they decide whether they should smoke in a place based on the "condition" (*kondisi*) or "atmosphere" (*suasana*) of the place, which they described as places where there are other smokers or cigarette butts. Descriptive norms may also be influenced by the behavior of influential *role models*, such as city officials or religious leaders. Focus group participants said these leaders can be influential in setting an example of either following or ignoring a smoke-free law. *Injunctive social norms* (perceptions about what one is expected to do) come from many sources, including role models, smoke-free law signage, the *environment* (e.g., whether the room has air conditioning, whether the room has good air flow, whether there are children and pregnant women around), *knowledge of the smoke-free law and where it applies*, beliefs

that secondhand smoke is harmful (influenced by *knowledge that secondhand smoke is harmful*), and *beliefs about the religious acceptability of smoking* (influenced by beliefs that secondhand smoke is harmful and *knowledge of religious decrees*). These influences reflect the many expectations imposed on a person by social, religious, legal, and moral pressures. *Group identity* includes whether one is with family or friends, and whether these individuals smoke or do not smoke, thus affecting the group with which the smoker would like to identify. Some female smokers stated that they sometimes avoid smoking and act "pious" around certain family members, but then smoke freely with friends. *Outcome expectations* include positive expectations such as relaxation and improved socializing from smoking, or negative expectations such as social judgment or confrontation by the public, a reprimand by the venue manager, or a legal fine from an enforcement official. These expectations are informed by *past experience* of what has happened when the smoker has smoked in a similar context in the past. For example, participants who had seen enforcement raids in Bogor said they are now more careful about where they smoke.

Additional constructs were also added to the TNSB to elaborate on other influences on compliance with smoke-free laws. The belief that secondhand smoke is harmful can lead to *attitudes in support of smoke-free laws*. In focus groups, some smokers said they support the smoke-free law as a way of protecting the health of children and other adults. Additionally, a very practical aspect of considering breaking a smoke-free law is whether there are easy *alternatives*. For example, if a person wants to smoke and has finished their meal, it might be easy to step outside to smoke. On the other hand, a shopkeeper in a mall working alone might not want to leave their store for risk of

losing business. In Bogor, this was commonly seen among cell phone sellers who smoked indoors in the mall as they watched over their kiosks. Finally, although perhaps foremost in causality, is the *physiological intensity of the nicotine cravings.* Other things being equal, a person with strong cravings would be expected to be more likely to violate the law than a person who has weaker or no nicotine cravings.

The current model follows the principal of the TNSB that many factors act as moderators of the influence of descriptive norms on behavior. However, it may be quite possible that many of these constructs also have direct effects on behavior. For example, outcome expectations are expected to have a direct effect, in that someone who is fearful of a strong negative reaction may avoid smoking regardless of the descriptive norm. In this model additional relationships may need elucidation after more findings are incorporated.

Variants of this conceptual model can also be created to reflect the effect of many of these constructs on a member of the public's behavior of confronting a smoker, a venue manager's behavior of asking a smoker to follow the law, or an enforcement official's behavior in enforcing the law on a person or venue violating the law. The decision of the member of the public, venue manger, or enforcement official to confront a smoker then influences the current model through the construct of outcome expectations.

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APPENDIX F: CURRICULUM VITAE

Curriculum Vitae

M. Justin Byron

PERSONAL DATA
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EDUCATION

2014 (Anticip.)	PhD	Johns Hopkins Bloomberg School of Public Health, Baltimore, MD Department of Health, Behavior & Society Social and Behavioral Sciences Dissertation: *A qualitative inquiry into the implementation of smoke-free laws in low- and middle-income countries: The example of Bogor, Indonesia*
2009	MHS	Johns Hopkins Bloomberg School of Public Health, Baltimore, MD Department of Health, Behavior & Society Behavioral Sciences and Health Education Masters Thesis: *Using online social networking technology for smoking cessation*
2000	BA	Boston College, Chestnut Hill, MA Majors: Psychology and Philosophy *magna cum laude*

PROFESSIONAL EXPERIENCE

2010-Present	PhD Fieldwork Research and Analysis, Department of Health, Behavior & Society, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD
2009-2010	Student Researcher, Institute for Global Tobacco Control, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD
2008-2009	Research Associate, Schroeder Institute for Tobacco Research and Policy Studies, American Legacy Foundation, Washington, DC
2008	Research Fellow, Schroeder Institute for Tobacco Research and Policy Studies, American Legacy Foundation, Washington, DC
2007-2008	Research Assistant, Institute for Global Tobacco Control, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD
2006-2007	Intern, Center for Global Tobacco Control, Harvard School of Public Health, Boston, MA
2004-2007	Development Coordinator, National Braille Press, Boston, MA
2003-2004	Coordinator of Development & Communications, Sociedad Latina, Roxbury, MA

HONORS AND AWARDS

2012	Doctoral Special Project Research Award, Johns Hopkins Bloomberg School of Public Health
2009	Hopkins Sommer Scholarship, Johns Hopkins Bloomberg School of Public Health
2009	Delta Omega National Honorary Society in Public Health
2000	Order of the Cross and Crown, Boston College

TEACHING EXPERIENCE

Online Course: Health Communication Programs
Graduate Teaching Assistant
Johns Hopkins Center for Communications Programs
Dates: Jan-Mar 2011, Jan-Mar 2013, Mar-May 2013
Instructors: Benjamin V. Lozare, PhD, Phyllis T. Piotrow, PhD

Course: Media Advocacy: Theory and Practice
Graduate Teaching Assistant
Johns Hopkins Bloomberg School of Public Health, Department of Health, Behavior & Society
Dates: Mar-May 2011
Instructor: David H. Jernigan, PhD

Online Course: Global Tobacco Control
Graduate Teaching Assistant
Johns Hopkins Bloomberg School of Public Health, Institute for Global Tobacco Control
Dates: Mar-May 2008, Oct-Dec 2008, Mar-May 2009
Instructor: Frances A. Stillman, EdD

Course: Values in Social Service & Health Care
Undergraduate Teaching Assistant
Boston College, Philosophy Department
Dates: Sep-Dec 1999
Instructor: David Manzo, MEd

PUBLICATIONS

6. **Byron MJ**, Suhadi DR, Hepp LM, Avila-Tang E, Yang J, Asiani G, Rubaeah, Tamplin SA, Bam TS, Cohen JE. Secondhand tobacco smoke in public venues in three Indonesian cities. Med J Indones. 2013 Nov;22(4):232-7.doi:10.13181/mji.v22i4.606

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PRESENTATIONS

Byron MJ. A qualitative inquiry into the effect of religious leaders' statements about smoking on public acceptance of smoke-free laws. Poster presentation at the 20th Annual Meeting of the Society for Research on Nicotine and Tobacco, Seattle, WA, February 5-8, 2014.

Byron MJ. Pearson J. Use of distributed labor technology to measure compliance with a smoke-free signage regulation. Poster presentation at the 20th Annual Meeting of the Society for Research on Nicotine and Tobacco, Seattle, WA, February 5-8, 2014.

Byron MJ. Understanding secondhand smoke laws in high-prevalence LMIC's- Early findings from Indonesia. Poster presentation at the 19th Annual Meeting of the Society for Research on Nicotine and Tobacco, Boston, MA, March 13-16, 2013.

Co-chair of Rapid Response Paper Session. 19th Annual Meeting of the Society for Research on Nicotine and Tobacco, Boston, MA, March 13-16, 2013.

Byron MJ. Altria's development of an integrated marketing campaign for Black & Mild. Oral presentation at the National Conference on Tobacco or Health, Kansas City, MO, August 15-17, 2012.

Byron MJ, Bam TS, Tamplin SA, Hepp LM, Jernigan DH. Interviews with stakeholders regarding a smoke-free policy in an Indonesian city. Poster presentation at the 15th World Conference on Tobacco or Health, Singapore, March 2012.

Byron MJ. The FDA's response to new dissolvable tobacco products. Poster presentation at the 17th Annual Meeting of the Society for Research on Nicotine and Tobacco, Toronto, ON, Canada, February 16-19, 2011.

Cullen J, Xia H, Vallone D, **Byron MJ**, Mowery P, Thornton A. A descriptive epidemiology of cigar use in the United States, 2002-2007. Poster presentation at the National Conference on Tobacco or Health, Phoenix, AZ, June 10-12, 2009.

Byron MJ, Cobb NK. An overview of electronic cigarettes. Poster presentation at the 137th American Public Health Association Annual Meeting and Exposition, Philadelphia, PA, November 7-11, 2009.

Moderator for session: Media, Social Networks, and Other New Communications Tools and Strategies for Tobacco Control. 137th American Public Health Association Annual Meeting and Exposition, Philadelphia, PA, November 7-11, 2009.

RESEARCH GRANT PARTICIPATION

(Byron, M. Justin) 3/1/12 – 8/1/14
Research Award, Institute for Global Tobacco Control at the Johns Hopkins Bloomberg School of Public Health funded by the Bloomberg Initiative to Reduce Tobacco Use
Understanding implementation of smoke-free laws in Bogor, Indonesia
This qualitative study was conducted to understand the perspectives of various stakeholders in Bogor, Indonesia about the implementation of the country's first comprehensive smoke-free policy.
Role: Student Investigator

(Byron, M. Justin) 11/29/11 – 3/15/12
Doctoral Special Project Funding Award, Department of Health, Behavior and Society
Johns Hopkins Bloomberg School of Public Health
Language training in preparation for qualitative dissertation research
The goal of this grant was to obtain educational materials and language tutor support to learn the Bahasa Indonesia language in preparation for dissertation research.
Role: Student Investigator

(Byron, M. Justin) 6/1/10 – 8/1/10
Research Award, Institute for Global Tobacco Control at the Johns Hopkins Bloomberg School of Public Health funded by the Bloomberg Initiative to Reduce Tobacco Use
Preliminary field discussions and groundwork in Bogor, Indonesia
Role: Student Researcher